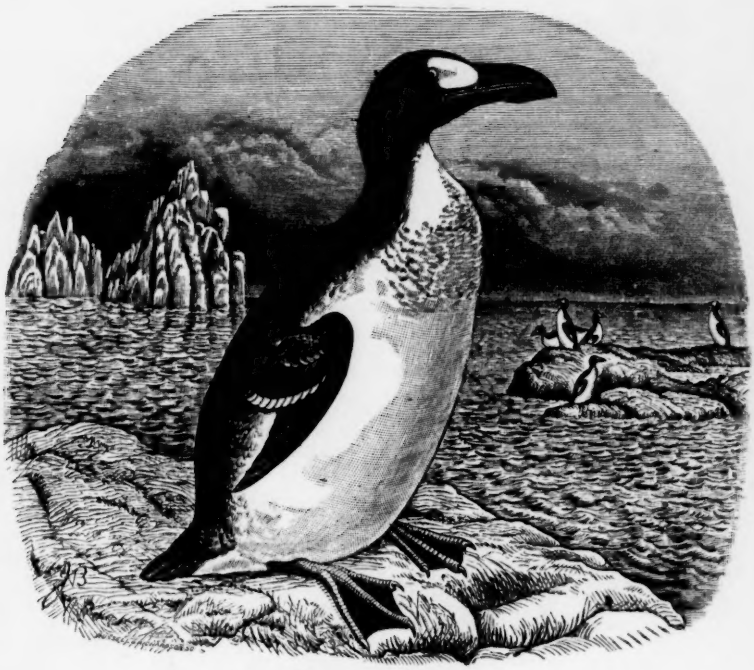
OLD SERIES, VOL. XV. } CONTINUATION OF THE BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB { NEW SERIES, VOL. VII

The Auk

A Quarterly Journal of Ornithology

EDITOR,
J. A. ALLEN

ASSOCIATE EDITOR,
C. F. BATCHELDER



VOLUME VII
PUBLISHED FOR
The American Ornithologists' Union

NEW YORK
L. S. FOSTER
1890

CONTENTS OF VOLUME VII.

NUMBER I.

PAGE

To What Extent is it Profitable to Recognize Geographical Forms among North American Birds. By *J. A. Allen* . 1

On the Eastern Forms of *Geothlypis trichas*. By *Frank M. Chapman* 9

A Summary of Observations on the Birds of the Gulf Coast of Florida. By *W. E. D. Scott* 14

Notes on *Pipilo fuscus mesoleucus* and *Pipilo aberti*, their Habits, Nests and Eggs. By *Capt. Charles E. Bendire* . . . 22

Observations on some of the Summer Birds of the Mountain Portions of Pickens County, South Carolina. By *Leverett M. Loomis*. 30

On the Winter Distribution of the Bobolink (*Dolichonyx oryzivorus*), with Remarks on its Routes of Migration. By *Frank M. Chapman* 39

Observations on the Avifauna of Portions of Arizona. By *Dr. Edgar A. Mearns* 45

Addendum to 'A List of the Birds of the Hudson Highlands, with Annotations.' By *Dr. Edgar A. Mearns* 55

Note on the Nesting of *Buteo brachyurus* at St. Marks, Florida. By *C. J. Pennock* 56

A New Wren from the Lower Rio Grande, Texas, with Notes on Berlandier's Wren of Northeastern Mexico. By *George B. Sennett* 57

Second Supplement to the American Ornithologists' Union Check-List of North American Birds 60

Seventh Congress of the American Ornithologists' Union . 66

RECENT LITERATURE.

Waterhouse's 'Index Generum Avium,' 71; Blanchard on the Nomenclature of Organized Beings, 73; Ridgway's Ornithology of Illinois, 74; Menzbier's Ornithology of Turkestan, 77; Nehrling's Bird Biographies, 78; Minor Ornithological Publications, 79; Publications Received, 86.

GENERAL NOTES.

An Early date of a Rare Bird in South Carolina, 88; The Mottled Duck in Kansas, 88; Capture of the Widgeon (*Anas penelope*) on the James River, Virginia, 88; The King Eider (*Somateria spec-*

350125

tabilis) at Erie, Pennsylvania, 88; The Little Brown Crane (*Grus canadensis*) in Rhode Island, 89; Baird's Sandpiper at New Haven, Connecticut, 89; *Callipepla squamata* in Northeastern New Mexico, 89; The Key West Quail-Dove (*Geotrygon martinica*) at Key West, 90; *Buteo brachyurus* and *B. fuliginosus*, 90; New York City Owls, 90; *Megascops asio maxwelliæ*, 91; The American Hawk Owl near Washington, D. C., 91; Note on *Cyanocitta stelleri litoralis* Maynard, 91; Capture of a Canada Jay (*Perisoreus canadensis*) near Cambridge, Massachusetts, 91; A Second Nest and Eggs of *Picicorvus columbianus* taken in Colorado, 92; Bullock's Oriole in Maine, 92; Notes upon *Coccothraustes vespertina* as a Cagebird, 93; Intergradation between *Zonotrichia leucophrys* and *Z. intermedia*, and between the latter and *Z. gambeli*, 96; Mortality among Bank Swallows, 96; Capture of a Specimen of the Orange-crowned Warbler (*Helminthophila celata*) in the vicinity of Washington, D. C., 96; A Curious Specimen of the Yellow-throated Warbler (*Dendroica dominica*), 97; The Nest and Eggs of *Regulus calendula*, 97; *Myadestes townsendii* Wintering in Montana, 98.

NOTES AND NEWS.

Obituary, John G. Bell, 98; Specimens Exhibited at the A. O. U. Congress, 99; Photographs of Birds, 99; Dr. E. A. Mearns's Collections, 100; Ornithologists at the American Museum, 100; The Late Mr. Snowdon Howland's Collection of Eggs, 100; Davie's 'Nests and Eggs of North American Birds,' 100.

NUMBER II.

BARRED OWLS IN CAPTIVITY. By *Frank Bolles* 101
A SUMMARY OF OBSERVATIONS ON THE BIRDS OF THE GULF COAST OF FLORIDA. By *W. E. D. Scott* 114
ON THE CHANGES OF PLUMAGE IN THE BOBOLINK (*Dolichonyx oryzivorus*). By *Frank M. Chapman* 120
OBSERVATIONS ON SOME OF THE SUMMER BIRDS OF THE MOUNTAIN PORTIONS OF PICKENS COUNTY, SOUTH CAROLINA. By *Leverett M. Loomis* 124
A LIST OF BIRDS OBSERVED AT SANTAREM, BRAZIL. By *Clarence B. Riker*. With Annotations by *Frank M. Chapman* 131
THE HORNED LARKS OF NORTH AMERICA. By *Jonathan Dwight, Jr.* 138
A NEW VIREO FROM CALIFORNIA. By *F. Stephens* 159
A STUDY OF THE GENUS *Dendrornis* AND ITS SPECIES. By *D. G. Elliot* 160

RECENT LITERATURE.

Salvin and Godman's Biologia Centrali-Americana — Aves, 189; Saunders's Manual of British Birds, 195; Notes on Sport and Ornithology, 196; Doan's Birds of West Virginia, 197; The

Quadrate Bone in Birds, 198; Minor Ornithological Publications, 198; Publications received, 201.

GENERAL NOTES.

The Appearance of the Razor-billed Auk (*Alca torda*) on the Coast of North Carolina, 203; The Great Auk in the U. S. National Museum, 203; Eggs of the Florida Dusky Duck, 204; Another Capture of the Widgeon (*Anas penelope*) on the Atlantic Coast, 204; Capture of a Specimen of *Somateria dresseri* in the vicinity of Ottawa, Canada, 204; The Red Phalarope on Lake Erie, 204; Recent Occurrence of the Turkey Vulture in Eastern Massachusetts, 204; Harlan's Hawk a Race of the Red-tail, and not a Distinct Species, 205; Capture of a Third Specimen of the Barn Owl in Massachusetts, 205; The Great Gray Owl in Lewis County, New York, 206; *Picoides arcticus* in Central New York, 206; The Red-bellied Woodpecker in Northwestern New Jersey, 206; Food of Young Hummingbirds, 206; Remarks on certain Species of *Dendrornis*, 207; The Purple Grackle at Charleston, South Carolina, 208; *Quiscalus quiscula æneus* Killing and Catching Goldfish, 208; The Evening Grosbeak at Montreal, 209; *Coccothraustes vespertina* in Erie County, N. Y., 209; Evening Grosbeaks in Vermont, 210; *Coccothraustes vespertina* at Amherst, Massachusetts, 210; Evening Grosbeaks in Hampden County, Massachusetts, 210; The Evening Grosbeak in Connecticut, 211; Evening and Pine Grosbeaks in Ontario, 211; The Ipswich Sparrow in Georgia, 211; The Acadian Sharp-tailed Sparrow and Scott's Seaside Sparrow on the Coast of South Carolina, 212; *Passer domesticus* in Cape Breton, 212; Shrikes of Minnesota, 213; Notes on some Minnesota Birds, 213; Note on Pacific Coast Birds, 214.

CORRESPONDENCE.

Recording the Number of Birds Observed, 216.

NOTES AND NEWS.

Obituary, Dr. Ladislas Tackzanowski, 218; Amendments of the A. O. U. By-Laws, 218; A Study of the Genus *Junco*, 219; Minor Ornithological Publications, 219; Record Sheets, 220; Fourth Edition of Dr. Coues's 'Key to North American Birds,' 220; 'Ornithologisches Jahrbuch,' 220; 'The Observer,' 220 Mr. W. E. D. Scott's Explorations, 220; Pileated Woodpecker, 220.

NUMBER III.

AN ACCOUNT OF FLAMINGOES (*Phœnicopterus ruber*) OBSERVED IN THE VICINITY OF CAPE SABLE, FLORIDA. By *W. E. D Scott* 221

CAPE COD BIRD NOTES. By *G. S. Miller, Jr.* 226

ADDITIONAL NOTES ON THE BIRDS OF ONEIDA COUNTY, NEW YORK. By *William L. Ralph* and *Egbert Bagg* 229
NOTES ON THE NESTING HABITS OF SEVERAL BIRDS OF SAN JOSÉ, COSTA RICA. By *George K. Cherrie* 233
NOTES ON THE FRINGILLIDÆ OF WESTERN ILLINOIS. By *Otho C. Poling* 238
DESCRIPTIONS OF A NEW SPECIES AND THREE NEW SUBSPECIES OF BIRDS FROM ARIZONA. By *Dr. Edgar A. Mearns, U. S. A* . 243
OBSERVATIONS ON THE AVIFAUNA OF PORTIONS OF ARIZONA By *Dr. Edgar A. Mearns, U. S. A* 251
TWO SPECIES OF SWALLOW NEW TO NORTH AMERICA. By *W. E. D. Scott* 264
A LIST OF BIRDS OBSERVED AT SANTAREM, BRAZIL. By *Clarence B. Riker*. With annotations by *Frank M. Chapman* 265

RECENT LITERATURE.

Ridgway on the Genus *Xiphocolaptes*, 271; Ridgway on the Genus *Sclerurus*, 272; Ridgway on Birds from the Galapagos Islands, the Abrolhos, the Island of Santa Lucia, and from the Straits of Magellan, 273; Chapman on the Genus *Xiphorhynchus*, 274; Berlepsch on some Neotropical Birds in the U. S. National Museum, 275; Stejneger on European Titmice, 275; Stejneger on Hawaiian Birds, 275; Stejneger's 'Review of Japanese Birds,' 276; Lucas on the Osteology of the Thrushes and Wrens, 277; Shufeldt on the Osteology of the Ardeinæ, 277; Shufeldt on the Relationships of the Genus *Chamæa*, 278; Shufeldt's Studies of the Macrochires, 278; Shufeldt on the Osteology of the North American Passeres, 279; Maynard's 'Eggs of North American Birds,' 280; Bryant's 'Catalogue of the Birds of Lower California,' 281; Anthony on New Birds from Lower California, 281; Sennett on Bird Legislation, 282; Publications Received, 282.

GENERAL NOTES.

Black Guillemot in Connecticut, 283; the Widgeon (*Anas penelope*) near Baltimore, Md., 283; The King Eider (*Somateria spectabilis*) at Brunswick, Ga., 284; The Snow Goose (*Chen hyperborea nivalis*) on the Coast of Maine, 284; Former Abundance of the Wild Pigeon in Central and Eastern New York, 284; Harlan'sHawk, 285; Habits of the Barred Owl, 286; *Phalænoptilus nuttalli nitidus* Breeding in Kansas. Is it a Valid Race, or a Color Phase of *P. nuttalli*?, 286; Food and Habits of the Ruby-throated Hummingbird, 286; Snake Skins in the Nests of *Myiarchus crinitus* 288; Wintering of the Red-winged Blackbird near Cambridge, Mass., 288; (*Coccothraustes vespertina* in Taunton, Massachusetts, 289; The Evening Grosbeak (*Coccothraustes vespertina*) near Springfield, Mass., 289; *Junco hyemalis shufeldti* in Maryland, 289; Seaside Sparrows at Monomoy Island, Cape Cod, 289; Young Cedarbirds and Great Crested Flycatchers in Captivity, 290; Song of the Female Butcher Bird, 290; *Helminthophila celata* at Montreal, 290; The Song of *Helminthophila leucobronchialis*, 291; *Dendroica cærulea* again in the District of Columbia, 291; *Cistothorus stellaris* at Washington, D. C., 291; Capture of the Hudsonian Chickadee in Worcester County, Mass., 291; A Yellow-crowned *Regulus calendula*, 292; The Breeding Ranges and Songs of Three Thrushes in Montana, 292; Additional Notes

on the Probable Breeding of *Saxicola œnanthe* near Godbout, Province of Quebec, Canada, 294; Notes on Several Species of Water Birds at Muskeget Island, Massachusetts, 294; Notes on Several Birds in the Catskill Mountains, 295; Notes on Birds observed in the Colorado Desert in Winter, 296.

CORRESPONDENCE.

The Delaware Valley Ornithological Club, 298.

NOTES AND NEWS.

Obituary, John Henry Gurney, 299; Zoe, a Biological Journal, 300; A New Book by Capt. Bendire, 300.

NUMBER IV.

On Birds observed at the Dry Tortugas, Florida, during Parts of March and April, 1890. By *W. E. D. Scott* . . . 301
A Supposed New Species of Hummingbird in the Royal Zoölogical Museum of Dresden. By *A. B. Meyer* 315
Somateria dresseri, the American Eider. By *George H. Mackay* 315
On a Collection of Birds from Fort Churchill, Hudson's Bay. By *W. Eagle Clarke* 319
The Nesting of the Yellow-throated Warbler at Raleigh, N. C. By *C. S. Brimley* 323
Birds found Breeding on Seven Mile Beach, New Jersey. By *Charles S. Shick.* 326
Notes on Habits and Nesting of *Vireo flavoviridis* (Cass.). By *George K. Cherrie* 329
North American Birds found at San José, Costa Rica, with Notes on their Migration. By *George K. Cherrie* . . . 331
Notes on Habits of a Few Birds of Orange County, Florida. By *D. Mortimer* 337
Description of a New Species of *Icterus* from Andros Island, Bahamas. By *J. A. Allen* 343
A List of Birds from Northeast Borneo, with Field Notes by Mr. C. F. Adams. By *D. G. Eliot*. 346
Summer Robin Roosts. By *William Brewster* 360
On a Collection of Birds made during the Winter of 1889-90, by Cyrus S. Winch, in the Islands of St. Thomas, Tortola, Anegada, and Virgin Gorda, West Indies. By *Charles B. Cory* 373
Description of a new Subspecies of Wild Turkey. By *W. E. D. Scott* 376
A New Subspecies of the Solitary Sandpiper. By *William Brewster* 377

RECENT LITERATURE.

Sclater's Catalogue of the Tracheophonæ, 379; Allen on Birds from Quito, 380; Allen on Birds collected in Bolivia, 381; Allen on the Genus *Cyclorhis*, 382; Allen's Descriptions of New South American Birds, 384; Allen on Individual and Seasonal Variation in the Genus *Elainea*, 385; Allen on the Maximilian Types of South American Birds, 386; Dionne's Catalogue of the Birds of Quebec, 387; Proceedings of the Linnæan Society, 387; Minor Ornithological Publications, 388; Publications Received, 398.

GENERAL NOTES.

The Little Black Rail (*Porzana jamaicensis*) at Key West, Florida, 400; The Dowitcher at Ottawa, 400; The American Barn Owl near Troy, New York, 400; *Strix pratincola* in Western New York, 400; A Correction, 400; Breeding of the Pileated Woodpecker in Worcester County, Massachusetts, 400; *Melanerpes aurifrons* in Young Co., Texas, in 1878, 401; Notes on *Eugenes fulgens*, 402; The Philadelphia Vireo in Vermont, 403; Spotted Eggs of Swainson's Warbler, 403; *Helminthophila chrysoptera* in Manitoba, 404; Was he a Philanthropist? 404; Capture of a Second Specimen of the Hooded Warbler in Massachusetts, 407; Interesting Nesting Site of a Winter Wren (*Troglodytes hiemalis*), 407; The Hudsonian Chickadee (*Parus hudsonicus*) in Vermont and Massachusetts, 407; (*Myadestes townsendii* in Nebraska, 408; The Long-billed Marsh Wren, Maryland Yellowthroat, Nashville Warbler, and Great Blue Heron in Eastern Massachusetts in Winter, 408; Two Notes from South Carolina, 410.

CORRESPONDENCE.

A Query in regard to the Least Tern, 410.

NOTES AND NEWS.

Obituary, William Kitchen Parker, 411; Eighth Congress of the A. O. U., 412; Second International Ornithological Congress, 412; Sparrow Legislation, 413; New Books, 414; Work of the Division of Economic Ornithology and Mammalogy, 414; Mr. Jonathan Dwight, Jr., 414.

OFFICERS AND STANDING COMMITTEES OF THE AMERICAN ORNITHOLOGISTS' UNION 1889-90.

	Expiration of term.
ALLEN, J. A., *President*	November, 1890.
COUES, ELLIOTT, RIDGWAY, ROBERT, *Vice Presidents*	" 1890.
SAGE, JOHN H., *Secretary*	" 1890.
DUTCHER, WILLIAM, *Treasurer*	" 1890.

ADDITIONAL MEMBERS OF THE COUNCIL.

BREWSTER, WILLIAM	November, 1890.
CORY, CHARLES B.	" 1890.
ELLIOT, DANIEL G.	" 1890.
HENSHAW, HENRY W.	" 1890.
LAWRENCE, GEORGE N.	" 1890.
MERRIAM, C. HART	" 1890.
STEJNEGER, LEONHARD	" 1890.

EDITORIAL STAFF OF 'THE AUK.'

ALLEN, J. A., *Editor*	November, 1890.
BATCHELDER, C. F., *Associate Editor*	" 1890.

COMMITTEES.

Committee on Publications.

ALLEN, J. A., *Chairman.*
RIDGWAY, ROBERT, *Secretary.*
COUES, ELLIOTT.
SAGE, JOHN H.
BREWSTER, WILLIAM.

Committee of Arrangements for the Meeting of 1890.

ALLEN, J. A., *Chairman.*
FISHER, A. K.
HENSHAW, H. W.
MERRIAM, C. HART.
RIDGWAY, ROBERT.

MEMBERS OF THE AMERICAN ORNITHOLOGISTS' UNION. DECEMBER, 1889.

ACTIVE MEMBERS.

[Omission of date indicates a Founder.]

	Date of Election
ALDRICH, Hon. CHARLES, Webster City, Iowa	—
ALLEN, J. A., Am. Mus. Nat. Hist., 77th St. and 8th Ave., New York City	—
BAILEY, H. B., 51 South St., New York City	—
* BAIRD, Prof. SPENCER F., Washington, D. C.	—
BARROWS, Prof. W. B., Dept. of Agriculture, Washington, D. C.	1883
BATCHELDER, CHARLES F., Cambridge, Mass.	—
BELDING, L., Stockton, Cal.	1883
BENDIRE, Capt. CHARLES E., U. S. A., Smiths. Inst., Washington, D. C.	—
BICKNELL, EUGENE P., P. O. Box 2958, New York City	—
† BREWSTER, WILLIAM, Cambridge, Mass.	—
BROWN, NATHAN C., Portland, Me.	—
BRYANT, WALTER E., San Francisco, Cal.	1888
CHADBOURNE, Dr. ARTHUR P., Cambridge, Mass.	1889
CHAMBERLAIN, MONTAGUE, Harvard College, Cambridge, Mass.	—
CHAPMAN, FRANK M., Am. Mus. Nat. Hist., 77th St. and 8th Ave., New York City	1888
COOKE, Prof. W. W., Burlington, Vt.	1884
† CORY, CHARLES B., 8 Arlington St., Boston, Mass.	—
† COUES, Dr. ELLIOTT, Smiths. Inst., Washington, D, C.	—
DEANE, RUTHVEN, 2 Wabash Ave., Chicago, Ill.	1883
DUTCHER, WILLIAM, 51 Liberty St., New York City	1886
DWIGHT, JONATHAN, Jr., 2 East 34th St., New York City	1886
ELLIOT, DANIEL G., Am. Mus. Nat. Hist., 77th St. and 8th Ave., New York City	—
FISHER, Dr. ALBERT K., Dept. of Agriculture, Washington, D. C.	—
FORBES, Prof. S. A., Champaign, Ill	1883
FOSTER, LYMAN S., 35 Pine Street, New York City	1888
GILL, Prof. THEODORE N., Smiths. Inst., Washington, D. C.	1883
† GOSS, Col. N. S., Topeka, Kans.	1883
GRINNELL, Dr. GEORGE B., 'Forest and Stream' Office, New York City	1883
HENSHAW, HENRY W., Bureau of Ethnology, Washington, D. C.	1883
* HOLDER, Dr. J. B., Am. Mus. Nat. Hist., New York City	—
JEFFRIES, Dr. J. AMORY, 3 Exeter St., Boston, Mass.	1883
LANGDON, Dr. F. W., 65 West 7th St., Cincinnati, O.	1887

*Deceased. †Life Member.

LAWRENCE, GEORGE N., 45 East 21st St., New York City.....1883
LAWRENCE, NEWBOLD T., 51 Liberty St., New York City,.....1883
McILRAITH, THOMAS, Hamilton, Ontario, Can..... —
MEARNS, DR. EDGAR A., U. S. A., Fort Snelling, Minn..... —
MERRIAM, Dr. C. HART, Dept. of Agriculture, Washington. D. C.... —
† MERRILL, Dr. JAMES C., U. S. A., Frankford Arsenal, Philadelphia, Pa.....1883
NEHRLING, H., 815 North Ave., Milwaukee, Wis.....1883
NELSON, E. W., St. Johns, Arizona 1883
PRENTISS, Dr. D. W., 1101 14th St., N. W., Washington, D. C..... —
PURDIE, H. A., West Newton, Mass..... —
RIDGWAY, ROBERT, Smiths. Inst., Washington, D. C..... —
ROBERTS, Dr. THOMAS S., 24 South 4th St. Minneapolis, Minn.....1883
† SAGE, JOHN H., Portland, Conn.....1883
SAUNDERS, WM. E., 188 Dundas St., London, Ontario, Can.....1883
SCOTT, W. E. D., Tarpon Springs, Fla.....1886
† SENNETT, GEORGE B., Am. Mus. Nat. Hist., 77th St. and 8th Ave., New York City.....1883
SHUFELDT, Dr. ROBERT W., U. S. A., Smiths. Inst., Washington, D. C..... —
STEJNEGER, Dr. LEONHARD, Smiths. Inst., Washington, D. C.....1884
† TRUMBULL, GURDON, 970 Asylum Ave., Hartford, Conn 1888
*WHEATON, Dr. J. M., Columbus, Ohio..... —
WIDMANN, M. OTTO, 3826 So. Broadway, St. Louis, Mo.....1884

HONORARY MEMBERS.

BOCAGE, Prof. J. V. BARBOZA DU, Royal Museum, Lisbon, Portugal..1883
BURMEISTER, Dr. HERMANN VON, Director National Museum, Buenos Ayres.....1884
CABANIS, Prof. Dr. JEAN, Alte Jacobstrasse, 103a, Berlin, Germany..1883
DRESSER, HENRY E., Topclyffe Grange, Farnborough, Beckenham, Kent, England.....1883
FINSCH, Dr. OTTO, Delminhorst, near Bremen, Germany 1883
GÄTKE, HEINRICH, Heligoland, via Bremen, Germany.....1884
GIGLIOLI, Dr. HENRY HILLYER, Royal Superior Institute, Florence, Italy.....1883
GUNDLACH, Dr. JUAN, Ingenio Fermina, Bemba, Cuba.....1883
GURNEY, JOHN HENRY, Northrepps Hall, Norwich, England.....1883
HARTLAUB, Dr. GUSTAV, Bremen, Germany.....1883
HUME, ALLAN OCTAVIAN, Simla, India.....1883
HUXLEY, Prof. THOMAS H., 4 Marlborough Place, Abbey Road, London, N. W.....1883
KRAUSS, Dr. FERDINAND, Stuttgart, Germany.....1883
MILNE-EDWARDS, Prof. ALPHONSE, Rue Cuvier, 57, Paris.....1883
NEWTON, Prof. ALFRED, University of Cambridge, Cambridge, Eng..1883

*Deceased. †Life Members.

PARKER, Prof. WILLIAM KITCHEN, Crowland, Trinity Road, Upper Woting, London, S. W.....1883
PELZELN, Dr. AUGUST VON, 13, Royal Zoöl. Museum, Vienna.....1883
SALVADORI, Prof. Count TOMMASO, Royal Zoöl. Museum, Turin, Italy 1883
SALVIN, OSBERT, Hawksfold, Fernhurst Haslemere, England.....1883
SAUNDERS, HOWARD, 7 Radnor Place, Hyde Park, London, W.....1884
*SCHLEGEL, Prof. HERMANN, Leyden, Holland.....1883
SCLATER, Dr. PHILIP LUTLEY, 3 Hanover Sq., London, W.....1883
SEEBOHM, HENRY, 6 Tenterden St., Hanover St., London, W.....1884
SHARPE, RICHARD BOWDLER, British Museum, South Kensington, London, S. W.....1883
TACZANOWSKI, Dr. W., University, Warsaw, Russia.....1884
WALLACE, Prof. ALFRED RUSSEL, Nutwood Cottage, Frith Hill, Godalming, England.....1883

CORRESPONDING MEMBERS.

ALFARO, ANASTASIO, Director National Museum, San José, Costa Rica.....1888
ALTUM, Dr. C. A., Eberswalde, Germany.....1884
ANDERSON, Dr. JOHN, India Museum, Calcutta.....1884
BALDAMUS, Dr. EDUARD, Moritzwinger, No. 7, Halle, Germany.....1884
BERLEPSCH, Count HANS VON, Münden, Germany.....1883
BLAKISTON, Capt. THOMAS W., London, Ohio.....1883
BLANFORD, W. T., Arts Club, London.....1884
BLASIUS, Dr. RUDOLH, Brunswick, Germany.....1884
BLASIUS, Dr. WILHELM, Brunswick, Germany.....1884
*BOGDANOW, Prof. Dr. MODEST N., University of Moscow, Moscow. 1884
BROOKS, W. E., Milton, Ontario, Canada.....1886
BULLER, SIR WALTER LAWRY, 8 Victoria Chambers, Victoria St., Westminster, London, S. W.....1883
BUREAU, Dr. LOUIS, Ecole de Médicine, Nantes, France.....1884
BUTLER, Lieut.-Col. E. A., Herringfleet Hall, Lowestoft, England...1884
BÜTTIKOFER, Dr. J., Leyden, Holland.....1886
COLLETT, Prof. ROBERT, Zoölogical Museum, Christiania, Norway..1883
COOPER, Dr. J. G., Haywards, California.....1884
CORDEAUX, JOHN, Great Cotes, Ulceby, Lincolnshire, England.....1884
DALGLEISH, JOHN J., 8 Athole Crescent, Edinburgh, Scotland.....1883
DAVID, L'Abbé ARMAND, Rue de Sèvres, 95, Paris.....1883
DOLE, SANFORD B., Honolulu, Hawaiian, Ids.....1888
DUBOIS, Dr. ALPHONSE, Museum Nat. History, Brussels.....1884
DUGÈS, Prof. ALFREDO, Colegio del Estado, Guanajuato, Mexico....1884
ECHT, ADOLF BACHOFEN VON, Nussdorf, near Vienna.....1884
FATIO, Dr. VICTOR, Geneva, Switzerland.....1884

*Deceased.

FIELDEN, Lieut.-Col. H. W., West House, Wells, Norfolk, England 1884
FERRARI-PEREZ, Prof. FERNANDO, Naturalist Mexican Geol. Expl. Commission, Pueblo, Mexico 1885
FREKE, PERCY EVANS, Rosemount, Dundrum, County Dublin, Ireland 1883
GADOW, Dr. HANS, The New Museums, Cambridge, England 1884
GIRTANNER, Dr. A., St. Galle, Switzerland 1884
GODMAN, F. DU CANE, 10 Chandos Street, Cavendish Sq., London .. 1883
GODWIN-AUSTEN, Lieut-Col. H. H., Shalford House, Guilford, England 1884
GRANDIDIER, ALFRED, 6 Rond-Point des Champs Elysées, Paris ... 1883
GURNEY, JOHN HENRY, Jr., Keswick Hall, Norwich, England 1883
*HAAST, Dr JULIUS VON, Christ-Church, New Zealand 1884
HARGITT, EDWARD, Broadwater Lodge, Broadwater, Worthing, Sussex, England 1884
HARTING, JAMES EDWARD, Linnæan Society, Burlington House, Piccadilly, London 1883
HARVIE-BROWN, JOHN A., Dunipace House, Larbert, Stirlingshire, Scotland 1883
HAYEK, Dr. GUSTAV VON, Vienna 1884
HENSON, HARRY V., Yokohama, Japan 1888
HOLUB, Dr. EMIL, Vienna 1884
*HOMEYER, Dr. E. F. VON, Stolp, Germany 1884
KNUDSON, VALDEMAR, Kauai, Hawaiian Ids. 1888
KRUKENBERG, Dr. E. F. W., Würzburg, Germany 1884
KRÜPER, Dr. THEOBALD J., University Museum, Athens, Greece 1884
LAYARD, E. L., H. B. M. Consul, Noumea, New Caledonia 1884
LYTTLETON, THOMAS, Lord LILFORD, Lilford Hall, Oundle, England 1889
MACFARLANE, ROBERT, Winnipeg, Manitoba 1886
MADARÁSZ, Dr. JULIUS VON, National Museum, Budapest, Hungary. 1884
MALMGREN, Dr. A. J., University, Helsingfors, Finland 1884
*MARSCHALL, Graf A F., Wallzeil, 33, Vienna 1884
MENZBIER, Dr. M., Moscow, Russia 1884
MEYER, Dr. A. B., Königl. Zool. Museum, Dresden 1884
MIDDENDORF, Dr. A. VON, Dorpat, Russia 1884
MOJSISOVICS, Dr. A. VON, Gratz, Austria 1884
NAMIYE, M., Tokio, Japan 1886
NICHOLSON, FRANK, 62 Fountain St., Manchester, England 1884
OATES, E. W., 6 Tenterden St., Hanover Sq., London 1884
OUSTALET, Dr. EMILE, Jardin des Plantes, 55 Rue de Buffon, Paris .. 1883
PALMÉN, Prof. J. A., Helsingfors, Finland 1883
PHILIPPI, Dr. R. A., Santiago, Chili 1884
*PRJEVALSKI, General N. M., Acad. of Science, St. Petersburg, Russia 1884

*Deceased.

*Pryer, Harry, Yokohama, Japan.....1884
Radde, Dr. Gustav Ferdinand, Tiflis, Russia.....1884
Ramsey, E. P., Sydney, New South Wales, Australia.....1884
Reichenow, Dr. Anton, Königl. Mus. für Naturkunde, Invaliden Str., 43, Berlin.....1884
Ringer, Frederic, Nagasaki, Japan.....1888
Schrenck, Dr. Leopold von, St. Petersburg, Russia.....1884
Selys-Longschamps, Baron Edmond de, Liége, Belgium.....1884
*Severtzow, Dr. N., Moscow Russia.....1884
Shalow, Dr. Herman, 31 Paul Str., N. W., Berlin, Germany.....1884
Shelley, Capt. G. E., 6 Tenterden St., Hanover Sq., London.....1884
*Stevenson, Henry, Unthank's Road, Norwich, England.....1884
Theel, Dr. Hjalmar, University of Upsala, Upsala, Sweden.....1884
Tristram, Rev. Canon H. B., The College, Durham, England.....1884
Tschusi zu Schmidhoffen, Count Victor Ritter von, near Hallein, Salzburg, Austro-Hungary.....1884
Wharton, Henry T., 39 St. George's Road, Kilburn, London, N. W.1884
Zeledon, Don José C., San José, Costa Rica.....1884

ASSOCIATE MEMBERS.

Adney, E. T., University Building, New York City 1885
Allen, Dr. Charles S., 21 E. 28th St., New York City 1888
Allen, Francis H., West Roxbury, Mass 1888
Amery, Charles F., 'Forest and Stream' Pub. Co., 318 Broadway, New York City 1886
Anthony, A. W., San Diego, Cal. 1885
Archer, W. C., 252 7th St., Jersey City, N. J. 1888
*Atkins, Dr. H. A., Locke, Ingham Co., Mich.....1883
Atkins, J. W., Key West, Florida 1887
Averill, C. K., Jr., Bridgeport, Conn.....1885
Avery, Dr. Wm. C., Greensboro, Ala.....1887
Ayer, Ed. E., 234 So. Water St., Chicago, Ill.....1889
Bagg, Egbert, 187 Genesee St., Utica, N. Y. 1883
Bailey, Vernon, Elk River, Minn.....1887
Baily, Wm. L., 212 So. 3d St., Philadelphia, Pa. 1886
Bangs, E. A., 31 Pemberton Sq., Boston, Mass. 1884
Bangs, Outram, 31 Pemberton Sq., Boston, Mass.....1884
Banks, J. W., Portland, N. B. .....a.....1887
Barnard, Job, 500 5th St., N. W., Washington, D. C. 1886
Barnes, Hon. R. M., Lacon, Ill. 1889
Beal, F. E. L., Lunenburg, Mass. 1887
Beard, Daniel C., 110 Fifth Av., New York City.....1887
Beard, J. Carter, 347*a* Quincy St., Brooklyn, N. Y.....1889
*Beckham, C. W., Bardstown, Ky.....1883

* Deceased.

BELL, JAMES P. H., Gainesville, Fla.....1889
BELLOWS, ED. D., 215½ 4th St., Jersey City, N. J. 1889
BENNER, FRANKLIN, 517 Nicollet Av., Minneapolis, Minn. 1883
BENSON, Lieut. H. C., U. S. A., West Point, N. Y.....1886
BENT, ARTHUR C., Taunton, Mass.....1889
BERGTOLD, Dr. W. H., 1192 Delaware Av., Buffalo, N. Y. 1889
BERIER, DELAGNEL, Bay Ridge, Kings Co., N. Y. 1885
BILL, CHARLES, Springfield, Mass. 1889
BISHOP, Dr. LOUIS B., Box 235, New Haven, Conn. 1885
BOARDMAN, G. A., Calais, Maine 1884
BOGERT, M. T., Flushing, Queens Co., N. Y.....1889
BOLLES, F., Harvard College, Cambridge, Mass.....1889
BOND, FRANK, Cheyenne, Wyoming 1887
BRADFORD, M. B. L., Providence, R. I. 1889
BRANDRETH, FRANKLIN, Sing Sing, N. Y. 1886
BRASHER, REGINALD I., 142 Montague St., Brooklyn, N. Y. 1889
*BREESE, WM. L., Islip, Suffolk Co., N. Y. 1888
BRIMLEY, C. S., Raleigh, N. C. 1888
BROCKUNIER, SAML. H., Wheeling, West Virginia 1889
BROWN, HERBERT, Tucson, Arizona 1885
BROWN, HERBERT H., 445 Yonge St., Toronto, Can. 1889
BROWN, JOHN CLIFFORD, 85 Vaughan St., Portland, Me.....1888
BROWNE, FRANK C., Framingham, Mass. 1883
BULLY, REGINALD H., Canton, Ohio 1889
BUTLER, AMOS W., Brookville, Ind. 1885
CAIRNS, JOHN S., Weaverville, N. C.....1889
CAMP, ROBERT D., Box 726, Stamford, Conn. 1888
CANTWELL, GEORGE G., Lake Mills, Jefferson Co., Wis.....1889
CHAMBERLAIN, C. W., 51 Lincoln St., Boston, Mass. 1885
CLARK, HUBERT L., Amherst, Mass.....1886
CLARK, J. N., Saybrook, Conn.....1885
CLUTE, WILLARD N., 11 Jarvis St., Binghamton, N. Y.....1889
COALE, H. K., 101 Washington St., Chicago, Ill.....1883
COBB, W. H., Albuquerque, New Mexico.....1888
*COE, W. W.. Portland, Conn.....1883
COLBURN, W. W., Springfield, Mass.....1889
COLBY, EDWARD A., 4130 Drexel Boulevard, Chicago, Ill.....1886
COLEMAN, GEO. A., London, Neb.....1888
COLLINS, Capt. J. W., Smiths. Inst., Washington, D. C.....1888
COLTON, WM. N., Biddeford, Me.....1889
COMEAU, NAP. A., Godbout, P. Q., Can,.....1885
CONKLIN, Dr. WM. A., Director of Menagerie, Central Park, New York City.....1885
COPE, ALBAN, Germantown, Pa.....1885
COPELAND, A. M., Springfield, Mass.....1889

---

* Deceased.

COUES, ELLIOTT BAIRD, care of Dr. E. Coues, Smiths. Inst., Washington, D. C.....1886
COUES, WM. PEARCE, 14 Ash St., Cambridge, Mass.....1888
COX, D. G., 367 Ontario St., Toronto, Can.....1888
COX, PHILIP, Newcastle, New Brunswick.....1887
CURTIS, FRED W., Wauwatosa, Wis.....1889
DAENZER, CARL, 13 No. 3d St., St. Louis, Mo.....1888
DAGGETT, FRANK S., Duluth, Minn.....1889
DANA, ROY, Warren, Ohio.....1889
DAVIE, OLIVER, Columbus, Ohio.....1889
DAVIS, EDWIN C., Box 277, Gainesville, Texas.....1888
DAVISON, J. L., Lockport, Niagara Co., N. Y.....1885
DAY, E. L., Buckhannon, W. Va.....1888
DELAFIELD, JOSEPH L., 475 5th Ave., New York City.....1888
DENSLOW, H. C., Am. Mus. Nat. Hist., New York City.....1889
DICKINSON, EDWIN, Springfield, Mass.....1885
DOAN, WM. D., Coatesville, Chester Co., Pa.....1885
DRAKE, JOHN N., Mutual Life Ins. Co., 32 Nassau St., New York City.....1886
DREW, FRANK M., Bloomington, Ind.....1885
DURFEE, OWEN, 46 Maple St., Fall River, Mass.....1887
DUTCHER, BASIL HICKS, 51 Liberty St., New York City.....1886
DYCHE, Prof. L. L., Lawrence, Kansas.....1886
EAMES, EDWIN H., Bridgeport, Conn.....1888
EDDY, N. A., 615 North Grant St., Bay City, Michigan.....1885
EDSON, JOHN M., Sehome, Washington.....1886
*ELLIOTT, S. LOWELL, 466 8th St., South Brooklyn, N. Y.....1888
EMERSON, W. OTTO, Haywards, Cal.....1885
EPPLEY, KURTZ, Orange, N. J.....1888
EVANS, EVAN M., Englewood, N. J.....1888
EVERMANN, Prof. B. W., Terre Haute, Ind.....1883
FAIRBANKS, Hon. FRANKLIN, St. Johnsbury, Vt.....1885
FANNIN, JOHN, Provincial Museum, Victoria, B. C.....1888
FISHER, WM. HUBBELL, 12 Wiggins Block, Cincinnati, Ohio.....1883
FLINT, H. W., Yale National Bank, New Haven, Conn.....1888
FORBUSH, EDW. H., 424 Main St., Worcester, Mass.....1887
FOX, Dr. WM. H., 1517 L St., Washington, D.C.....1885
FREEMAN, WM. H., 216 Reid Ave., Brooklyn, N.Y.....1889
FURNESS, WALTER ROGERS, Wallingford, Delaware Co., Pa.....1888
GALE, DENIS, Gold Hill, Boulder Co., Colorado.....1886
GAULT, B. F., 878 Washington Building, Chicago, Ill.....1885
GESNER, Rev. A. H., 22 East 131st St., New York City.....1885
GIBSON, LANGDON, Flushiug, Queens Co., N. Y.....1887
GILBERT, CARLETON, 116 Wildwood Ave., Jackson, Mich.....1889
GOODALE, JOS. L., Saco, Maine.....1885
GOSS, B. F., Pewaukee, Waukesha Co., Wis.....1883

*Deceased.

GOULD, JOSEPH E., 281½ No. High St., Columbus, Ohio.....1889
GRANT, U. S., 200 West 19th St., Minneapolis, Minn.....1885
GREEN, MORRIS M., Dept. of Agriculture, Washington, D. C.....1887
GREGG, Dr. WM. H., 143 West 21st St., New York City.....1885
HAGARUP, A., Greenland, via Norrevold 46, Copenhagen, Denmark..1888
HANMER, C. C.. Burnside, Conn.....1888
HARDY, MISS FANNIE P., Brewer, Maine.....1886
HARDY, MANLY, Brewer, Maine.....1883
HASBROUCK, EDWIN M., U. S. Geol. Survey, Washington, D. C.....1887
HAUPT, LOUIS, 61 Liberty St., New York City.....1888
HAWLEY, A. H., Vineland, N. J.....1886
HAZARD, R. G., 2d, Peace Dale, R. I.....1885
HEIMSTREET, Dr. T. B., 14 Division St., Troy, N. Y.....1888
HELME, ARTHUR H., Millers Place, Suffolk Co., N. Y.....1888
HENDRICKSON, W. F., 860 Broadway, New York City.....1885
HICKS, GEO. J., New Brighton, Richmond Co., N. Y.....1887
HICKS, HENRY, Westbury Station, Queens Co., N. Y.....1889
HICKS, JOHN D., Old Westbury, Queens Co., N. Y.....1888
HIGGINS, ALGERNON S., 1227 Fulton St., Brooklyn, N. Y.....1888
HOLBROOK, Judge S. T., Norwich, Conn.....1885
HOLMES, E. S., D. D. S., 103 Ottawa St., Grand Rapids, Mich.....1885
HOLTERHOFF, G., Jr., San Diego, Cal.....1883
HOLZINGER JOHN M., State Normal School, Winona, Minn.....1887
HOOPES, JOSIAH, West Chester, Pa.....1889
HORNADAY, W. T., U. S. Nat. Mus., Washington, D. C.....1888
HOUGH, ROMEYN B., Lowville, N. Y.....1883
HOWELL, ARTHUR H., 212 Madison St., Brooklyn, N. Y.....1889
*HOWLAND, SNOWDON, Newport, R. I.....1883
HOY, Dr. P. R., Racine, Wis.....1883
HOYLE, CHARLES E., Millbury, Mass.....1889
HOYT, WM. H., Stamford, Conn.....1888
HULL, WALTER B., Milwaukee, Wis.....1889
HURTER, JULIUS, 2346 So. 10th St., St. Louis, Mo.....1888
HVOSLEF, Dr. J. C., Lanesboro, Minn.....1885
INGALLS, CHARLES E., East Templeton, Mass.....1885
INGERSOLL, ALBERT M., Box 712, San Diego, Cal.....1885
JACKSON, THOS. H., West Chester. Pa.....1888
JACOBS, J. WARREN, Waynesburg, Pa.....1889
JAMES, HOWARD K., Courant Building, Hartford, Conn.....1888
JARDINE, CHAS. S., 318 East 39th St., New York City.....1888
JEFFRIES, WM. A., 78 Devonshire St., Boston, Mass.....1883
JENKS, Prof. J. W. P., 31 George St., Providence, R. I.....1888
JENNINGS, ALLEN H., 2101 Oak Ave., Baltimore, Md.....1886
JOHNSON, ALBERT I., Hydeville, Vt.....1885
JOHNSON, FRANK, Parkville, Kings Co., N. Y.....1888
JOHNSON, FRED. O., Oakland, Cal.....1888

* Deceased.

JOHNSON, LORENZO N., Evanston, Ill.....1888
JOHNSON, Prof. O. B., Seattle, Washington Territory.....1885
JOHNSON, ROBERT W., Colorado Springs, Col.....1888
JONES, LYNDS, Grinnell, Iowa.....1888
JORDAN, A. H. B., Willsborough, Essex Co., N. Y.....1888
JORDAN, Prof. D. S., Bloomington, Ind.....1885
JOUY, P. L., Smiths. Inst., Washington, D. C.....1883
KEELER, CHRALES A., Berkeley, Alameda Co.,Cal.....1889
KELLOGG, VERNON L., Lawrence, Kan.....1888
KENDALL, W. C., Freeport, Cumberland Co., Me.....1886
KEYES, C. R., Des Moines, Iowa.....1885
KING, Miss ELLEN, Great Neck, Queens Co., N. Y.....1888
KING, GEORGE GORDON, Newport, R. I.....1888
KNOWLTON, F. H., U. S. Nat. Mus., Washington, D. C.....1883
KOHN, GUSTAVE, 14 Carondelet St., New Orleans, La.....1886
KUMLIEN, LUDWIG, Busseyville, Wis.....1888
*KUMLIEN, THURE, Milwaukee, Wis.....1883
LADD, SAM'L B., West Chester, Pa.....1889
LAMB, CHARLES R., Cambridge, Mass.....1885
LANTZ, Prof. D. E., Manhattan, Kansas.....1885
LAWRENCE, FRANK M., Moriches P. O., Suffolk Co., N. Y.....1888
LAWRENCE, ROBT. B., Mills Building, New York City.....1883
LAWRENCE, WM. M., 51 Liberty St., New York City.....1888
LEWIS, E. G., Trinity College, Hartford, Conn.....1888
*LINDEN, Prof. CHARLES, Buffalo, N. Y.....1884
LLOYD, WILLIAM, Marfa, Texas.....1885
LONG, H. B., Lake View, Mass.....1889
LOOMIS, JOHN A., Paint Rock, Concho Co., Texas.....1887
LOOMIS, LEVERETT M., Chester, S. C.....1883
LORING, J. ALDEN, Owego, N. Y.....1889
LUCAS, FREDERIC A., U. S. Nat. Mus., Washington, D. C.....1888
MABBETT, GIDEON, Rodney, Jefferson Co., Miss.....1888
MACKAY, Prof. A. H., Pictou, Nova Scotia.....1885
MACOUN, Prof. J., Geol. and Nat. Hist. Surv., Ottawa, Can.....1883
MCGREGOR, R. C., 2847 Champa St., Denver, Col.....1889
MCLENNAN, CHAS. A., Truro, Nova Scotia.....1889
MAITLAND, ROBERT L., 44 Broad St., New York City.....1889
MALI, CHARLES M., 329 Broadway, New York City.....1889
MARLATT, CHAS. LESTER, Manhattan, Kansas.....1888
MARSHALL, ALFRED, 115 Liberty St., New York City.....1886
MASON, EDWARD C., Arlington, Mass.....1888
MATHERS, Dr. J. R., Buckhannon, W. Virginia.....1888
MERRIAM, Miss FLORENCE A., Locust Grove, Lewis Co., N. Y.....1885
MERRILL, HARRY, Bangor, Maine.....1883
METCALFE, WM. C., 21 Cortlandt St., New York City.....1886
MILLER, G. S., Jr., Peterboro, N. Y.....1886

* Deceased.

MILLER, MRS. OLIVE THORNE, 236 Greene Ave., Brooklyn, N. Y....1887
MINOT, H. D., Care of St. Paul, Minneapolis and Manitoba R. R. Co., St. Paul, Minn....1883
MOORE, J. PERCY, 1931 Judson Place, Philadelphia, Pa....1886
MORCOM, G. FREAM, 870 North Park Ave., Chicago. Ill....1886
MORRIS, GEO. SPENCER, Olney, Philadelphia, Pa....1887
MORRIS, ROBT. O., Springfield, Mass....1888
MORTIMER, BENJAMIN, 1523 T. St., N. W., Washington, D. C....1888
MURDOCH, JOHN, Smiths. Inst., Washington, D. C....1883
NICHOLAS, GEORGE LAWRENCE, Mt. Sinai Hospital, Lexington Ave., New York City....1888
NORRIS, J. PARKER, 723 Walnut St., Philadelphia, Pa....1886
NORTON, RICHARD, Cambridge, Mass....1888
OBERHOLSER, HARRY C., Red Bank, N. J....1888
ONG, PLUMMER L., Clarence, Shelby Co., Mo....1888
PAINE, AUGUSTUS G., Jr., Champlain Fibre Co., Willsborough, N. Y.1886
PALMER, T. S., Dept. of Agriculture, Washington, D. C....1888
PALMER, WM., U. S. Nat. Mus., Washington, D. C....1888
PANNEPACKER, D. E., 2513 N. 12th St., Philadelphia, Pa....1888
PARK, AUSTIN F., 31 Boardman Building, Troy, N. Y....1885
PEACOCK, W. F., Marysville, Cal....1888
PENNOCK, C. J., Kennett Sq., Chester Co., Pa....1888
PERKINS, CHAS. E., Hartford, Conn....1888
PERRY, TROUP D., 22 Bull St., Savannah, Ga....1889
PETERSON, J. P., Luck, Wis....1885
PETTIT, A. E., 15 Cortlandt St., New York City....1889
PIERS, ARTHUR, 288 St. James St., Montreal, Can....1888
PINDAR, L. O., Hickman, Ky....1886
PLEASANTS, J. H., Jr., 606 Cathedral St., Baltimore, Md....1888
POPENOE, Prof. E. A., Manhattan, Kansas....1886
PRICE, WM. W., Riverside, Cal....1888
PRIME, Rev. WENDELL, D. D., 38 Park Row, New York City....1889
RADCLIFFE, CARLETON R., 132 W. 58 St., New York City....1888
RAGSDALE, G. H., Gainsville, Texas....1885
RAINE, WALTER, Hayden St., Toronto, Can....1889
RALPH, DR. W. L., 26 Court St., Utica, N. Y....1888
RATHBUN, FRANK R., 40 Franklin St., Auburn, N. Y....1883
RAWSON, CALVIN L., Norwich, Conn....1885
RESSELL, CYRUS B., Ercildown, Chester Co., Pa....1888
RICE, FRANK L., Evanston, Cook Co., Ill....1886
RICHARDS, JOHN BION, 8 Barnaby St., Fall River, Mass....1888
RICHARDSON, JENNESS, Am. Mus. Nat. Hist., New York City....1888
RICHMOND, CHAS. W., U. S. Geol. Surv., Washington, D. C....1888
RIECKER, ERNST, 900 So. 4th St., St. Louis, Mo....1888
RIKER, C. B., South Orange, N. J....1885
RILEY, Prof. C. V., U. S. Entomologist, Washington, D. C....1885
RIVES, Dr. WM. C., Jr., Newport, R. I....1885

ROBBINS, WM. A., 528 Golden Gate Ave., San. Francisco, Cal.....1888
ROBERTS, W. F., 503 E St., N. W., Washington, D. C.....1888
ROOSEVELT, THEODORE. Oyster Bay, Queens Co., N. Y.....1888
ROWLEY, J., Jr., Am. Mus. Nat. Hist., New York City.....1889
RUSSELL, GEO. C., 144 W. 7th St., Erie, Pa.....1888
SAGE, HENRY M., 274 Lawrence Hall, New Haven, Conn.....1885
SAUNDERS, DEALTON, Alfred Centre, N. Y.....1889
SCHICK, CHAS. S., Sea Isle City, N. J.....1889
SCHLEGEL, Miss MATHILDE, 134 16th St., Buffalo, N. Y.....1889
SCOTT, W. L., 86 Sparks St., Ottawa, Can.....1883
SEE, ABRAM W., Arlington, N. J.....1888
SEITER, PHIL. J., Chattanooga, Tenn.....1888
SHARP, Miss ALDA M., Gladbrook, Iowa.....1889
SHELTON, GEO. H., Seymour, Conn.....1888
SHORES, Dr. E. I., Soldiers' Home, Hampton, Va.....1883
SHURR, THEO. A., 66 Grand St., Waterbury, Conn.....1888
SLADE, JOHN A., 1134 Herkimer St., Brooklyn, N. Y.....1888
*SMALL, EDGAR A., Hagerstown, Md.....1883
SMITH, CLARENCE A., 241 W. 74th St., New York City, N. Y.....1889
SMITH, HORACE G., Jr., 2918 Lafayette St., Denver, Col.....1888
SMITH, Dr. HUGH M., 1248 New Jersey St., Washington, D. C.....1886
SMITH, JAMES E., Putnam, Conn.....1889
SMITH, S. SIDNEY, 59 Wall St., New York City.....1888
SORNBORGER, JEWELL D., Andover, Mass.....1888
SOUTHWICK, E. B., Arsenal Bldg., Central Park, New York City.....1888
SPELMAN, H. M., 62 Sparks St., Cambridge, Mass.....1883
STANTON, Prof. J. Y., Bates College, Lewiston, Me.....1883
STEBBINS, EDWARD W., Minneapolis, Minn.....1889
STEPHENS, F., Ballena, San Diego Co., Cal.....1883
STONE, WITMER, Fisher's Lane, Germantown, Pa.....1885
STREATOR, C. P., Garrettsville, O.....1889
STRODE, Dr. W. S., Bernadotte, Ill.,.....1889
STRONG, REUBEN M., Wauwatosa, Wis.....1885
STUDER, JACOB H., 103 W. 14th St., New York City.....1888
SWIFT, EDWARD A., Elmira, N.Y.....1888
SWINBURNE, JOHN, St. Johns, Apache Co., Ariz.....1887
TALBOT, D. H., Sioux City, Iowa.....1885
TATLOCK, JOHN, Jr., Mutual Life Ins. Co., New York City.....1887
TAYLOR, ALEX. O. D., 124 Bellevue Ave., Newport, R.I.....1888
TAYLOR, HARRY R., Alameda, Cal.....1889
TENNANT, EDW., Attleboro Falls, Mass.....1889
THOMPSON, ERNEST E., 86 Howard St., Toronto, Can.....1883
THOMPSON, FRANK J., Menagerie, Central Park, New York City....1885
THORNE, Capt. PLATTE M., 22d Inf., U. S. A., Ft. Keogh, Montana..1885
THURBER, N. CARLETON, Gladstone, Colfax Co., New Mex.....1886
TODD, LOUIS M., Calais, Me.....1887

* Deceased.

TOPPAN, GEO. L., 138 Jackson St., Chicago, Ill.....1886
TORREY, BRADFORD, Melrose Highlands, Mass.....1883
TOWNSEND, C. H., Smiths. Inst., Washington, D. C.....1883
TREAT, WILLARD E., East Hartford, Conn.....1885
TROMBLEY, JEROME, Petersburg, Mich.....1885
TROTTER, Dr. SPENCER, Prof. Nat. Hist. Swathmore College, Swathmore, Pa.....1888
TURNER, Dr. M. H., Hammondville, Essex Co., N. Y.....1885
TURNER, Dr. T. S., Huntington, N.Y.....1889
VAN CORTLANDT, Miss ANNIE P., Croton Landing, Westchester Co., N. Y.....1885
VELIE, Dr. J. W., Academy of Sciences, Chicago, Ill.....1886
*VENNOR, H. G., Montreal, Can.....1883
VERRILL, ALPHEUS H., 86 Whaley Ave., New Haven, Conn.....1888
VILARO, Dr. JAUN, Prof. Nat. Hist., Habana Univ., Habana, Cuba....1888
VOORHEES, CLARK G., 59 E. 75th St., New York City.....1888
WADSWORTH, D. S., Box 1061, Hartford, Conn.....1885
WAKEFIELD, J. R., Dedham, Mass.....1885
WALKER, Dr. R. L., Mansfield Valley, Pa.....1888
WARREN, Dr. B. H., West Chester, Pa.....1886
WEBSTER, FREDERIC S., 1345 Pa. Ave., Washington, D. C.....1886
WEEKS, W. T., Yaphank, Suffolk Co., N. Y.....1889
WELLS, Dr. JOHN A., Englewood, N. J.....1888
WEST, LEWIS H., Roslyn, Queens Co., N Y.....1887
WEST, SAM'L H., 76 Devoe St., Brooklyn, N. Y.....1889
WHEELER, DAVID E., St Paul's School, Concord, N. H.....1888
WHITE, HARRY GORDON, U. S. Fish Comm., Gloucester, Mass.....1889
*WILLARD, S. W., West DePere, Wis.....1883
WILLIAMS, J. B., 23 St. Vincent St., Toronto, Can.....1889
WILLIAMS, ROBERT S., Great Falls, Montana.....1888
WINTLE, ERNEST D., 11 Hospital St., Montreal, Can.....1887
WINTON, Rev. GEORGE, Beverly, San Luis Potosi, Mexico.....1889
WOLFE, WALTER M., Box 162, Kearney, Neb.....1888
WOOD, A. H., Painted Post, N. Y.....1887
*WOOD, Dr. WILLIAM, East Windsor Hill, Conn.....1883
WOODRUFF, LEWIS B., Yale University, New Haven, Conn.....1886
WORTHINGTON, WILLIS W., Shelter Island, Suffolk Co., N. Y.....1889
WRIGHT, Capt. J. W. A., Livingstone, Ala.....1888
ZEREGA, Dr. LOUIS A., Bellevue Hospital, New York City.....1884

*Deceased.

N. B.—Members of the Union and Subscribers to 'The Auk' will please promptly notify the publisher of 'The Auk' of any change of address.

590.5
A92

AUG 6 1919

Old Series, Vol. XV } CONTINUATION OF THE BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB { New Series, Vol. VII

The Auk

A Quarterly Journal of Ornithology

Vol. VII —JANUARY, 1890— No. 1

PUBLISHED FOR

The American Ornithologists' Union

NEW YORK

L. S. FOSTER

CONTENTS.

PAGE

To What Extent is it Profitable to Recognize Geographical Forms among North American Birds? By *J. A. Allen*. 1

On the Eastern Forms of *Geothlypis trichas*. By *Frank M. Chapman*. 9

A Summary of Observations on the Birds of the Gulf Coast of Florida. By *W. E. D. Scott* 14

Notes on *Pipilo fuscus mesoleucus* and *Pipilo aberti*, their Habits, Nests and Eggs. By *Capt Charles E. Bendire* 22

Observations on some of the Summer Birds of the Mountain Portions of Pickens County, South Carolina. By *Leverett M. Loomis* 30

On the Winter Distribution of the Bobolink (*Dolichonyx oryzivorus*), with Remarks on its Routes of Migration. By *Frank M. Chapman* 39

Observations on the Avifauna of Portions of Arizona. By *Dr. Edgar A. Mearns* 45

Addendum to 'A List of the Birds of the Hudson Highlands, with Annotations. By *Dr. Edgar A. Mearns* 55

Note on the Nesting of *Buteo brachyurus* at St. Marks, Florida. By *C. J. Pennock* 56

A New Wren from the Lower Rio Grande, Texas, with Notes on Berlandier's Wren of Northeastern Mexico. By *George B. Sennett* 57

Second Supplement to the American Ornithologists' Union Check-List of North American Birds 60

Seventh Congress of the American Ornithologists' Union 66

Recent Literature.—Waterhouse's 'Index Generum Avium,' 71; Blanchard on the Nomenclature of Organized Beings, 73; Ridgway's Ornithology of Illinois, 74; Menzbier's Ornithology of Turkestan, 77; Nehrling's Bird Biographies, 78; Minor Ornithological Publications, 79; Publications Received, 86.

General Notes.—An Early Date of a Rare Bird in South Carolina, 88; The Mottled Duck in Kansas, 88; Capture of the Widgeon (*Anas penelope*) on the James River, Virginia, 88; The King Eider (*Somateria spectabilis*) at Erie, Pennsylvania, 88; The Little Brown Crane (*Grus canadensis*) in Rhode Island, 89; Baird's Sandpiper at New Haven, Connecticut, 89; *Callipepla squamata* in Northeastern New Mexico, 89; The Key West Quail-Dove (*Geotrygon martinica*) at Key West, 90; *Buteo brachyurus* and *B. fuliginosus*, 90; New York City Owls, 90; *Megascops asio maxwelliæ*, 91; The American Hawk Owl near Washington, D. C., 91; Note on *Cyanocitta stelleri litoralis* Maynard, 91; Capture of a Canada Jay (*Perisoreus canadensis*) near Cambridge, Massachusetts, 91; A Second Nest and Eggs of *Picicorvus columbianus* taken in Colorado, 92; Bullock's Oriole in Maine, 92; Notes upon *Coccothraustes vespertina* as a Cagebird, 93; Intergradation between *Zonotrichia leucophrys* and *Z. intermedia*, and between the latter and *Z. gambeli*, 96; Mortality among Bank Swallows, 96; Capture of a Specimen of the Orange-crowned Warbler (*Helminthophila celata*) in the vicinity of Washington, D. C., 96; A Curious Specimen of the Yellow-throated Warbler (*Dendroica dominica*, 97; The Nest and Eggs of *Regulus calendula*, 97; *Myadestes townsendii* Wintering in Montana, 98.

Notes and News.—Obituary, John G. Bell, 98; Specimens Exhibited at the A. O. U. Congress, 99; Photographs of Birds, 99; Dr. E. A. Mearns's Collections, 100; Ornithologists at the American Museum, 100; The Late Mr. Snowdon Howland's Collection of Eggs, 100; Davie's 'Nests and Eggs of North American Birds,' 100.

'THE AUK,' published as the Organ of the American Ornithologists' Union, is conducted as a **Magazine of General Ornithology**. In general character it differs little from the late 'Bulletin of the Nuttall Ornithological Club,' of which it forms virtually a Second Series.

'The Auk' is edited by Mr. J. A. Allen, with the assistance of Mr. C. F. Batchelder.

Terms:—$3.00 a year, including postage, strictly in advance. Single numbers, 75 cents. Free to Honorary Members, and to Active and Associate Members of the A.O.U. not in arrears for dues.

Subscriptions and **Advertisements** should be addressed to the publisher, L. S. FOSTER, 35 Pine Street, New York, N. Y. **Foreign Subscribers** may obtain 'The Auk' through GURNEY AND JACKSON, 1 Paternoster Row, London.

All **articles** and **communications** intended for publication, and all **books** and **publications** for notice, should be sent to J. A. ALLEN, American Museum of Natural History, Central Park, New York City.

THE AUK:

A QUARTERLY JOURNAL OF ORNITHOLOGY.

VOL. VII. JANUARY, 1890. No. 1.

TO WHAT EXTENT IS IT PROFITABLE TO RECOGNIZE GEOGRAPHICAL FORMS AMONG NORTH AMERICAN BIRDS?*

BY J. A. ALLEN.

IN THE early days of natural history minute differences of structure, size or color received little attention, and the groups looked upon in early times as species now take, in not a few instances, the rank of a genus, the one wide-ranging species of the early authors having been found to include several species, each with its own circumscribed habitat. Buffon, for example, considered the exotic forms of life which closely resembled European types either as being degenerate forms of the latter, or as slight modifications of them, due to climatic influences, differences of food, etc. Even the species of Linnæus, and of his contemporaries and immediate followers, were often groups of a highly composite character. It was not till much later that the importance of nicer discriminations became apparent.

By the middle of the present century the smallest appreciable deviations became of specific import, and even a difference of habitat was not unfrequently thought to be sufficient ground for the presumption of specific diversity. Consequently individual variations were unwittingly made the basis of specific distinctions.

* Read at the Seventh Congress of the American Ornithologists' Union, Nov. 15, 1889.

In the progress of descriptive zoölogy the quest for new species and new genera became rampant. The distinction of imposing a new name, to be followed by *nobis* or *mihi*, led always to a search for differences. It was natural, in such a scramble, that resemblances should be overlooked, and that the study of individual variation should receive little attention. The synonyms that form such an array in our modern systematic treatises on zoölogy attest the result.

But not all descriptive naturalists erred equally or in the same way. There always have been, of course, both splitters and lumpers, the one class more or less at arms with the other, the one holding the other more or less in contempt. But aside from this individual diversity among naturalists there have been periodic phases of change in the matter of excessive splitting and the reverse, which may be likened to the oscillations of a pendulum. This is especially true in respect to our own country, and notably in regard to North American ornithology during the last half century. Within this period there have been at least three well-defined oscillations of the ornithological pendulum. The first, in the direction of excessive subdivision, reached its culmination about the year 1870. A reverse oscillation immediately followed, sweeping in character, and of strong and sudden impetus. It gradually spent itself during the latter part of the following decade. A third oscillation, in the direction of the first, feebly set in soon after, and, slowly acquiring momentum, now seems to have reached a degree of force that challenges candid consideration.

In this connection a brief review of the progress of our science during the last fifty years may not be out of place.

Fifty years ago there were no large collections of birds, either in public museums or in private cabinets, anywhere in America About this time the Government instituted a series of transcontinental surveys, extending in nearly parallel lines across the continent from about the 90th meridian westward to the Pacific coast, these lines being run at rather wide intervals from the Mexican border on the south to the British boundary on the north. These several military surveying parties were usually accompanied by good field naturalists and collectors. Also at about the same time the Smithsonian Institution, through the influence and direction of the late Professor Baird, secured correspondents and collectors at many points in British America. All of the collections thus

made were deposited in the National Museum, then commonly known as 'The Smithsonian.' In a few years a large amount of new material was thus brought together from the far West and the remote North. These were the first collections of any magnitude ever received from trans-Mississippian North America. Material from east of the Mississippi River was still scanty, and hence the proper means for careful comparison of eastern and western forms was often lacking.

During the elaboration of this material, derived from hundreds of isolated localities, the discovery of new forms, both generic and specific, was the paramount incentive in the investigation. Not till some years later did the subject of climatic influences upon animals, in other words the evolution of species by environment, receive much consideration. Nor could it have been otherwise. We have first to gather our facts before we can generalize. By these seeming strictures no discredit is intended to the naturalists of that period, nor any condemnation of their methods. They were the pioneers, conducting a careful reconnaissance, and preparing the way for the occupation of the field by the grand army of workers who followed later.

Variations, even when slight, are facts of great import, whether they be individual, climatic, or specific, in the usually accepted sense of this last term; and when, except in the case of purely individual variation, they are made the basis of a name their availability in the discussion of profounder questions is thereby greatly enhanced. Down to as late as 1865, a collection of individuals indicated by a binomial name was a species, theoretically, at least, distinct and definable from any other similar group. An occasional intermediate, when found, was a great stumbling block, usually to be accounted for on the theory of hybridization. Varieties, in the geographical sense of today, were rare indeed, and the term subspecies was almost unknown in zoölogy.

Between the years 1865 and 1870 the question of what was a species had already become a very troublesome one. Many of the then currently recognized species were found to be as elusive as the proverbial flea. The increase of material and better opportunities for investigation showed that the range of individual variation had been underrated, and that many of the alleged differences on which species had been founded were of little or no value, while in many other cases closely allied so-called species

were merely local, intergrading, geographical forms, correlated with special features or conditions of environment.

During the three years including and following the year 1871 ornithological opinion on the subject of species and subspecies, or respecting the status of a large proportion of the birds of North America, experienced a radical disruption. The first great wave, which for generations had been increasing in volume and force, met a barrier against which it recoiled and subsided with phenomenal suddenness, giving place to a strong and sweeping counter current. The key-note to the situation had been struck, and after a brief period of wavering a happy medium course was hit upon, which seemed to solve most of the difficulties that had beset the general subject of species. This was no less than the reduction of numerous so-called species to the rank of geographical races or subspecies, namely such as were found to intergrade with other forms, or which it seemed probable, on general principles, might so intergrade. Immediately inveterate splitters became bold lumpers, and the ornithological pendulum swung quickly back with a momentum sufficient to carry it somewhat beyond the vertical. The term 'var' interposed between the name of the original species (in the sense of the earliest described species) and its various local offshoots was the magic link which was to connect and duly correlate the discordant bird elements of our North American fauna. This, of course, was the origin and first phase of our present trinomial system of nomenclature, which ten years later was formally endorsed and adopted by the American Ornithologists' Union.

While this great step — little less than a revolution in its results — was in the main in the right direction, it led to some rash conclusions, theoretical reasoning now and then overstepping the hard line of facts. Consequently in a few instances species were unduly merged, and it has been necessary to reconsider these hasty rulings. The oscillation in the direction of unwarrantable lumping, however, soon reached its extreme limit; the pendulum settled back, and for a time remained at what we may consider as very near its normal point of equilibrium. For nearly a decade, dating from 1875, the deflections were slight and variable, now to one side, and now slightly to the other. This period of comparative stability includes the work of the A. O. U. Committee, in the years 1883-84, on the status of the described forms of North

American birds. As some hard-and-fast line in respect to subspecies was necessary it was very properly agreed by the Committee that no species should be reduced to a subspecies except on proof of intergradation. This kind of proof is sometimes lacking where its existence is a theoretical certainty. Yet it seemed better to leave such questions open to be settled by a later increase of material.

The work of the A. O. U. Committee on the momenclature and status of North American birds yielded as satisfactory results as could have been anticipated, nearly nine-tenths of its decisions being reached by practically unanimous consent. The outcome of its deliberations, as embodied in the A. O. U. Code and Check-List, has well stood the test of time, there having been found thus far very few cases where subsequent discoveries have necessitated any revision of the Committee's decisions. A few forms then considered as ineligible to subspecific rank, and therefore rejected, have since been admitted, in consequence of the acquisition of material from new localities rendering their proper status more evident; while others have been described and added to the list. Some of these later discoveries have proved, indeed, little less than startling. These facts, and the very great increase of material during the last five years, have had possibly a too stimulating effect; they have unquestionably started the pendulum again in the direction of finer discriminations and excessive splitting. The majority of the old A. O. U. Committee, the authors of the Check-List, will doubtless now admit forms to subspecific rank they would not have admitted in 1884, had they been then placed before them. They certainly know much more about North American birds at present than they did five years ago, but is their judgment as sound and are their tendencies as rationally conservative?

If any be without sin, let him cast the first stone. Conscious of my own changed tendencies, it has seemed to me well to raise the above question for brief consideration, since it can do no harm to survey the field calmly and take note of the present drift in respect to a very important subject.

Recent investigations have taken me over fields I worked, with some care, ten to fifteen years ago. In the meantime material has greatly increased; series of specimens have been obtained from localities then unknown; thus I find myself looking at

things in a new light, but from, I trust, a more advanced position. My former tendencies, in common with those of others at that time were in the direction of reducing doubtful forms to synonyms, and closely related species to geographical forms. Now, with much additional experience, some increase of knowledge in respect to particular points at issue, and much more abundant material, some of my former conclusions seem open to revision, as I now realize that the resources then at command were far less adequate for the settlement of questions at issue than I then supposed them to be.

The discoveries made during the last five years show that the subject of North American ornithology is far from exhausted, even in respect to the cataloguing of its numerous forms of bird life, and especially as regards their distribution. To show how much we did not know five years ago of the birds of even our long-settled southeastern States, I have but to instance five or six species—namely, Swainson's Warbler, Bachman's Warbler, Leconte's Sparrow, the Raven, and the Seaside Finches. Add to this the new forms recently brought to light in this supposed well-known area, and we must conclude that we are still only on the threshold of a thorough knowledge of the birds of our South Atlantic and Gulf States. What do we as yet know of the distribution of many of the southern subspecies of this area, and of their lines of inosculation with the northern forms? Nothing, with exactness. What do we yet know of the breeding ranges of the summer birds south of the Ohio Valley? Practically nothing. To how slight an extent are we able to unravel the many perplexing problems of the bird fauna of the great State of Texas, so peculiarly situated in relation to the East and the West, the North and the South, as regards North America at large. The great Southwest and the great Northwest, with their opposite extremes of climatic conditions and peculiarities of environment, as compared with the region to the eastward, still present to us many perplexing problems.

Under such a condition it is no wonder that the pendulum again tends in the direction of refined subdivision. We are alert for differences, with our wits sharpened to recognize slight variations in size, in form, and in tones of color. Our material is constantly becoming more ample, and the meaning of slight variations is thus more apparent than it otherwise would be. When large

series of specimens of any species from distant points are compared, in cases where the environment is more or less diverse, we are accustomed to find appreciable differences— in some cases slight, in others so well-marked as to be obvious at a glance. In many instances, however, the differences are apparent only when large series are available for comparison; the differences being merely average differences; a greater or less proportion of the specimens of the two series are practically indistinguishable, the range of individual variation in either series overlapping the difference characterizing the two slightly differentiated forms. In other cases the occurrence of specimens that cannot be easily referred, without knowing their origin, to one or to the other, is exceptional.

These being the general facts in the case we are at once confronted with a serious question and a grave danger. The splitters of an earlier time regarded every form, however slightly differentiated, as a species. We arbitrarily define a species as a group of individuals standing out distinct and disconnected from any similar group, within which, though occupying different parts of a common habitat, we recognize other forms characteristic of, and restricted to particular areas. These reach a maximum degree of differentiation at some point in the habitat, and thence gradually shade into other conspecific forms geographically contiguous.

The distinction we thus make between species and subspecies, though a purely conventional one, forms an indispensable basis for the convenient recognition of the various minor stages in the evolution of organized beings. The serious question is where to draw the line in recognizing local forms in nomenclature. While it is important to discover, and in some way record, even the very slight differences due to peculiarities of environment, there is obviously a reasonable limit to the naming of such forms by the use of the trinominal system of nomenclature. How well-marked then, must be a set of intergrades to entitle them to recognition? On this point no arbitrary hard-and-fast line can be laid down. Much, at least for the present, must be left to the discretion of the investigator. We are still groping in the dark; our steps are, in the main, tentative and provisional. We cannot act decisively in respect to the bird life of North America, or of any large area, till we know thoroughly the phases of variation throughout every nook and corner of the area in question. At present new forms

are coming to light, often where least expected; every considerable series of specimens from any locality previously known only superficially presents us with, if not new nameable forms, at least a new set of puzzling intergrades, tending to unsettle opinions we thought were safely grounded, and showing that every question touching the status of species and subspecies is still more or less open to revision.

Unquestionably the tendency at present is to name forms which six years ago would have been considered too slightly differentiated to require such recognition. On the other hand, differences long since noticed, have but recently come to be properly understood. In the light of new material they prove to have a significance previously unappreciated, owing to the absence of the requisite data.

It is still evident, however, that great caution should be exercised in bestowing trinomials, in order to guard against drawing too fine distinctions. Very little is gained by naming races distinguishable only by experts, aided by a large amount of material, or where the differentiation is largely a matter of a slight average difference between forms contiguous in habitat—forms which nine out of ten ornithologists of average acuteness and experience, and with only ordinary resources, will be more or less unable to satisfactorily distinguish. In fact, a form based on a certain series of specimens may seem to any investigator of this same material well founded, but when judged by other material not unfrequently loses much of the distinctness it seemed to present when tested by the first set of specimens.

There are necessarily, in cases of wide-ranging species which run into well-marked geographical forms, numerous connectent series, made up of intergrades of all degrees of relationship to the more extreme phases. Some of these intergrades may seem different enough from either extreme to warrant recognition as an additional subspecies. By such a course what do we gain? We bridge the difficulty by doubling it; we get rid of one set of of troublesome intergrades by creating two others; leading the way to further subdivision of like character, and increasing the difficulties. Obviously the situation is not in this way improved. Yet the tendency to this sort of division is evidently increasing, each step in this direction making the next one easier. Only the exercise of due discretion can prevent the reduction of "our bene-

ficent system of trinomials" to an absurdity. It is much easier to name a dozen new species or subspecies than to get rid of one, though erected on a false basis. Let us then weave our ornithological net so open-meshed that the undesirable small fry of incipient local forms may readily pass through and escape till further differentiation, in future ages, shall render them desirable captures.*

ON THE EASTERN FORMS OF *GEOTHLYPIS TRICHAS*.

BY FRANK M. CHAPMAN.

THREE years ago I obtained in Florida several Maryland Yellow-throats which apparently differed from northern specimens of this bird. During succeeding winters additional examples were secured, but being unable to obtain summer specimens, which without fear of error could be considered resident birds, I was unwilling to call attention to what I supposed was an undescribed form of this species resident in Florida. Thus the matter rested until recently, when Mr. W. E. D. Scott very courteously placed at my disposal his entire series of Florida specimens. In attempting now with the aid of this additional material to determine the status of the Florida bird, I found it would also be necessary to ascertain the relationships of the Mississippi Valley bird, to which the Audubonian name *roscoe* has recently been applied. To this end, therefore, through the kind offices of fellow naturalists, I have accumulated a large amount of material, in all somewhat over three hundred specimens.

The relationships of the Mississippi Valley bird. — From this region I have a series of some sixty specimens, of which thirty-eight are adult males in breeding plumage; with these I shall make my comparisons. Occupying an intermediate geographical position between the true *patriæ* of both the eastern and the

* In this connection I would call attention to the sagacious note of warning sounded by Dr. Coues in 1884, in the Preface to his 'Key to North American Birds' (p. xxvii, second paragraph).

western forms, the birds themselves are in a degree intermediate, as Mr. Ridgway has already shown.* In the extent of the yellow markings of the underparts, they approach *occidentalis;* in the restriction and coloration of the ashy band bordering the black facial mask, and in measurements, they agree with true *trichas.* In order to express the approximate degree of relationship they bear to each form, I have adopted the following method: Selecting from the Mississippi Valley lot two series, each of five specimens, representing respectively the extremes of coloration of both upper and under surface with their connecting stages, I have given to each stage a purely nominal, but relative, value. Thus the most highly colored specimen in either series I have rated at five, the next at four, and so on. These representative series I have used as a standard of comparison for (1) a series of true *trichas* from the Atlantic States, for (2) the Mississippi Valley series, and for (3) a small but representative series of *occidentalis*, taken throughout its range. In the appended table I present an average of the results obtained, including also the average measurements of these specimens, all of which are adult males in breeding plumage.

	Wing	Tail	Tarsus	Exposed Culmen	Extent of Yellow	Extent of Ashy border
20 specimens from Atlantic States	2.20	2.04	.77	.42	2.65	3.33
38 specimens from Mississippi Valley	2.20	2.02	.77	.42	3.73	3.36
10 specimens of *occidentalis*	2.25	2.14	.77	.42	4.60	4.60

An examination of this table shows how well it sustains the previous conclusion that the Mississippi Valley birds, as a whole, are nearer the eastern than the western form. Considering them now individually, I find there is not a specimen in the series of thirty-eight males which I cannot match in the series from the Atlantic States, nor is there a specimen in this latter series which does not find its counterpart among the birds from the Mississippi Valley. In neither series do I find a specimen as highly colored as are the extreme examples of *occidentalis.* I think, therefore, we may safely refer the Mississippi Valley bird to *Geothlypis trichas verus.*

*Manual N. A. Birds, p. 523, foot-note.

The *Sylvia* (*Geothlypis*) *roscoe* of Audubon, based on an *immature* male specimen taken in Mississippi in September, I do not consider identifiable; if the description does refer to the Mississippi Valley bird, I am at a loss to see on what characters its separation can be urged, and I do not, therefore, consider it worthy of recognition. The *Geothlypis trichas roscoe* of Hasbrouck, the types of which I have examined, based on winter specimens from Florida, I hope to show is referable to the resident Florida form, and not to the bird occupying the Mississippi Valley.

On the relationships of the Florida bird. — For the resident Florida bird, which I consider worthy of recognition, I propose the name

Geothlypis trichas ignota, *subsp. nov.* FLORIDA YELLOW-THROAT.

Geothlypis trichas roscoe HASBROUCK, Auk, VI, 1888, p. 167 (in part; not *Sylvia roscoe* AUD. Orn. Biog., I, 1831, p. 124, Pl. xxix).

SUBSP. CHAR. — Similar to *Geothlypis trichas* (Linn.), but with longer tarsus, tail, and bill; yellow of underparts of a deeper shade and greater extent; flanks of a much darker color; the upper parts browner; the facial mask wider, with its ashy border (in summer specimens) slightly paler and of greater extent. First primary shorter, equalling the eighth instead of the sixth, as in *Geothlypis trichas*.

Adult male in breeding plumage.—Type No. 3982, Coll. W. E. D. Scott, Tarpon Springs, Florida, May 19, 1887. Above olive green with a slight rusty tinge, somewhat lighter on the rump and tail; wings brownish, the feathers edged with the color of the back, the outer web of the first primary whitish, the carpal bend yellow. A broad black facial mask includes laterally the eyes, auriculars, and sides of the throat, reaching on the forehead to near the posterior margin of the eyes, and is bordered by a band of hoary ash, which has no abrupt posterior termination but, suffusing the crown, changes gradually into the color of the back. Under parts rich yellow, whitish on the centre of the abdomen; flanks rich ochraceous brown, the sides of the breast slightly washed with the same color. *Measurements:* Wing, 2.26; tail, 2.32; tarsus, .84; exposed culmen, .50 inch.

Remarks. — In this plumage I have three specimens: No. 6070, in Mr. Scott's collection, taken at Tarpon Springs, June 12, 1888, is in very worn plumage, and largely for this reason differs from the type in having much less ashy color on the crown, in being greener above and in having the flanks paler, the yellow, however, being of about equal extent. No. 61,135 of the U. S. National Museum, taken by Prof. Leconte in Liberty County, on

the coast of middle Georgia, is without date of capture, but is evidently a spring bird. It differs from the type in the greater extent of the ashy border which, mixed with yellowish, reaches to the nape.

Adult female in breeding plumage. — Type No. 3462, Coll. W. E. D. Scott, Tarpon Springs, Florida, May 27, 1887. Similar in color to the male, but without the black mask and ashy border, the crown being rusty brownish, paler on the forehead. The under surface is very similar to that of the average spring male specimen of *Geothlypis trichas*, but the yellow is of a deeper shade. *Measurements:* Wing, 2.14; tail, 2.15; tarsus, .84; exposed culmen, .48 inch.

First plumage.—No. 3844, Coll. W. E. D. Scott, Tarpon Springs, Florida, July 16, 1886. Similar to young of *Geothlypis trichas* in same stage of plumage, but throat, breast, and upper parts of a darker color.

Adult male in winter. Similar to adult male in the spring but darker above, the ashy band bordering the black mask restricted to a narrow line; crown rich rusty brown, brighter anteriorly, where also the feathers have more or less ashy and yellowish bases,—and fading gradually into the color of the back; abdomen somewhat paler. *Measurements*,—average of fourteen specimens: wing, 2.20; tail, 2.23; tarsus, .82; exposed culmen, .47 inch.

Remarks. — An examination of the types *Geothlypis trichas roscoe* Hasbrouck, kindly loaned me for examination by Mr. Hasbrouck, shows that it is based on a bird in winter plumage. That this is not the northern bird in winter plumage is apparently evident on comparing it with adult fall specimens of *trichas* from the northern States, from which it may be distinguished (1) by its size and much browner color above, particularly on the crown; (2) by the somewhat greater width of the black mask, and restriction and slightly deeper shade of its bordering ashy band; (3) by the extent and greater intensity of the colors of the underparts; and by the wing formula, the first primary equalling the eighth, and not the sixth as in *trichas*.

A specimen from Liberty County, Georgia (U. S. Natl. Mus., No. 32,232, Leconte) resembles the Florida birds in coloration but has the first primary somewhat longer than the average. A specimen from New Orleans, Louisiana, (U. S. Natl. Mus. No. 90,665, Nov. 26, Shufeldt) is fully as dark above as the Florida bird, but differs in having the ashy border to the black mask wider, with the yellow of the underparts somewhat lighter in color and of less extent, there being consequently more white on the abdomen, and the wing formula does not agree with that of Florida

specimens. A second specimen from New Orleans (Coll. Gustave Kohn, Oct. 30, 1889) is very similar to the bird just mentioned. Two adult males in the collection of Dr. A. K. Fisher (Nos. 2585 and 2586, June 1, 1886), from the same locality, agree in coloration with typical eastern specimens of *trichas;* No. 2585 has the abdomen lightly washed with yellow, but in No. 2586, this color is restricted to the throat. breast and crissum. The measurement of wing and tail correspond with those of northern examples, but the bill is nearly as large as any Florida specimen I have examined. These Louisiana specimens are very puzzling, and without the aid of further material it will be impossible to accurately determine the exact relationships of birds from this region.

Mr. Hasbrouck's collection contains examples of *ignota* from Palatka and Big Lake George, Florida; I have taken specimens at Gainesville, finding also as late as April 29 typical specimens of *trichas*. Six birds taken on the east peninsula opposite Micco, Brevard County, are apparently all referable to the northern form, though several are intermediate. They were, however, taken in a heavy growth of 'sedge' (*Borrichia frutescens*), while the resident bird, I think, favors the low growth of scrub-palmettos (*Chamærops serrulata*) which affords it excellent opportunities for concealment. Mr. Scott's collection contains nine adult winter males, six of which are referable to *ignota*, while the others are apparently more northern wintering birds. These six specimens, four taken in October and two in February, agree very closely among themselves, having the ashy crown band much restricted, the tail as long or longer than the wing, and tarsus .80 inch or more.

Adult female in winter.—Similar to adult fall specimens of *trichas*, but darker above, with the yellow of the breast and underparts washed with brownish.

Immature birds.—Immature birds of both sexes are not readily distinguishable from wintering northern specimens, and from the nature of the case there are at this season specimens showing every degree of intergradation, both as regards size and coloration. Generally speaking the resident birds are slightly darker above, with the marking of the undersurface deeper in color and of greater extent.

I am so deeply indebted for the loan of material that it is difficult for me to adequately express my thanks. Mr. Scott's splendid series of some sixty Florida specimens alone made this paper

possible; Mr. Ridgway sent me from the U. S. National Museum a large number of Mississippi Valley birds, and from the same region I also received specimens from Mr. Ruthven Deane, Mr. Gustave Kohn, Dr. A. K. Fisher, and Dr. F. W. Langdon. Mr. E. M. Hasbrouck permitted me to examine his types of *roscoe;* I had access to a large series of *trichas* containing many fall specimens, in the collection of Mr. J. Dwight, Jr., and have also examined the collections of Mr. George B. Sennett and Dr. E. A. Mearns. To all these gentlemen I return my most grateful thanks; their uniform courtesy in complying with my request has made the gathering of material a pleasure rather than a task.

A SUMMARY OF OBSERVATIONS ON THE BIRDS OF THE GULF COAST OF FLORIDA.

BY W. E. D. SCOTT.

(*Continued from Vol. VI, p. 252.*)

Lanius ludovicianus. LOGGERHEAD SHRIKE.—A common resident species at all points visited on the Gulf Coast. In the vicinity of Tarpon Springs they begin to breed by the last of March. They were common and bred at Punta Rassa, but Mr. Atkins has no records of the species at Key West.

Vireo altiloquus barbatulus. BLACK-WHISKERED VIREO.—A regular and common migrant, breeding on the Gulf coast of Florida at least as far north as Anclote Keys, where the birds are *common* during the summer months. They arrive at this point from the south about the last of any of the birds, not appearing till May 18, which is the earliest record, and not becoming common until the first week in June. The species seems to be confined to the low mangrove keys at this point, and rarely visits the main land. Yet it has been taken at Tampa, and and I have observed it on two occasions in the town of Tarpon Springs, both times late in the summer of 1886.

Mr. Atkins has observed and taken the birds at both Punta Rassa and Key West, where it is by no means uncommon. He says: "Arrived at Punta Rassa about May 18, 1886. Breeds in low thick growths of mangrove, both on the main land and on outlying keys. Last noted September 5, 1886. Taken at Key West, April 10 and 26, 1887, and observed

throughout June, 1888, and in the summer. Taken on September 5, 1888, and several times after, the latest being September 13." The birds have a song not unlike *Vireo olivaceus*, but usually delivered even more deliberately than the song of that species.

Vireo olivaceus. RED-EYED VIREO. — In the region about Tarpon Springs this is a common spring and fall migrant, arriving from the middle to last of March, and a number find a summer home at this point. Observed and taken throughout the summer of 1886. Took a young female, No. 5877, full-grown, June 3, 1888. Mr. Atkins says it is a common migrant both at Punta Rassa and at Key West, often being associated with *Vireo altiloquus barbatulus*.

Vireo gilvus. WARBLING VIREO. — Apparently a rare spring migrant in the vicinity of Tarpon Springs. Not observed in the fall. Mr. Atkins has not met with it at Punta Rassa or at Key West.

Vireo flavifrons. YELLOW-THROATED VIREO. — A rare migrant. At Tarpon Springs, April 26, 1887, I took an adult female, No. 3926. This is my only record. Mr. Atkins took it at Punta Rassa on April 5, 1886, and at Key West on April 1 and October 5, 1887.

Vireo solitarius. BLUE-HEADED VIREO.—A not uncommon migrant, and remains throughout the winter in small numbers in the vicinity of Tarpon Springs. The only point where Mr. Atkins has met with the species is Key West where he took a single bird on February 3, 1888.

Vireo noveboracensis. WHITE-EYED VIREO.—This bird appears to be, in the vicinity of Tarpon Springs, a rather rare migrant and winter resident. I have before me eight representatives taken, four in April and four in October, which are identical with White-eyed Vireos in my collection taken near Washington, D. C. These are all the Vireos that I have collected in this region which I can refer to true *noveboracensis*. They are about equally divided as to sex. Of the spring specimens two are males and two females, and the latter had not yet laid nor would they have laid for several weeks. It seems proper from these facts and those about to be presented in regard to *V. noveboracensis maynardi*, to consider true *noveboracensis* as a migrant and not as the form *breeding* in this part of Florida.

Vireo noveboracensis maynardi. KEY WEST VIREO.—Mr. Atkins has kindly sent me from the Island of Key West twenty-two representatives of this subspecies. Of these all but two were taken in April and May, and are doubtless all breeding birds. The other two specimens were taken in January and February and are very typical of this subspecies. Mr. Atkins finds the birds common, resident, and breeding in numbers. He has also sent me four White-eyed Vireos from Punta Rassa which match in all particulars the series of *Vireo noveboracensis maynardi* taken at Key West. I have before me twelve White-eyed Vireos taken at Tarpon Springs in the months of April, May, June, July, and September that so nearly match in all particulars the Key West birds of Mr. Atkins that they can only be looked upon as representatives of this subspecies. Three of these birds are fully fledged young birds of the year. The ear-

liest taken is No. 3370, ♀ *Juv.*, May 5, 1887. This bird, though only just fully grown, is quite recognizable as the subspecies in question, having the much more robust bill conspicuously developed. This and other characteristics of the subspecies are also clearly to be seen in the two other young birds, taken on June 12 and July 26 respectively. From the foregoing data it would seem probable that the breeding White-eyed Vireos of the Gulf coast, at least from Tarpon Springs south, are more properly referable to the subspecies *maynardi* than to the true *noveboracensis*.

Mniotilta varia. BLACK-AND-WHITE WARBLER. — This is a common migrant, but has not been observed in winter at Tarpon Springs. In the spring the birds arrive at this point about the last of March and are common until early in May, when for a short time they disappear. I have notes of their common occurrence in the third week of July, so they probably find a breeding ground at no very great distance.

Mr. Atkins has found the species to be common at both Punta Rassa and Key West at all times of the year except from May 2, when the last migrants to the north were noted, until July 13-16, when the birds returned in large numbers — both adults and young birds of the year.

Protonotaria citrea. PROTHONOTARY WARBLER. — During the spring migration, from March 30 until the latter part of April, and again from the last of July to the 20th of September, I have taken and observed this species in the vicinity of Tarpon Springs, but at no time can it be deemed a common bird at this point. Mr. Atkins has found it sparingly both at Punta Rassa and at Key West on the following dates: "Punta Rassa — August 28 and 29, 1886, and September 13 and 17 of the same year; Key West — April 6 and 11, and July 28, 1888; August 8, 1889, a single bird seen." These are all of his records.

Helinaia swainsonii. SWAINSON'S WARBLER. — I have been unable to detect the presence of Swainson's Warbler at or near Tarpon Springs at any time of the year. Mr. Atkins considers the species as very rare at Punta Rassa. At Key West on September 18 and 20, 1888, two birds were taken by him on each date, and during the present season, 1889, he writes of meeting with the birds but once, about the middle of September.

Helmitherus vermivorus. WORM-EATING WARBLER. — A rather uncommon migrant in the vicinity of Tarpon Springs. Appears about the 25th of March, remaining till late in April. I have not met with it at this point in the fall.

At Punta Rassa, Mr. Atkins found it a rather common migrant in the spring, and much rarer in the fall, when it appeared September 15 and remained but a few days. At Key West, he says: "1887, April 11, noted. Again on April 18. Returning, arrived August 30, and are more or less common until October 1." It is probable that a few individuals winter at Key West.

Helminthophila bachmani. BACHMAN'S WARBLER. — This bird has not been observed as yet on the Gulf coast in the vicinity of Tarpon Springs.

For records of its occurrence and capture by Mr. Atkins, on the Island of Key West during the seasons of 1887 and 1888, the reader is referred to 'The Auk,' Vol IV, p. 348, and Vol. V, pp. 428-430. During the season of 1889 Mr. Atkins has again had the opportunity to study this little-known and rare species, and has kindly sent me the following notes to be used in this connection: "Key West, Florida, 1889. First arrival from north, July 17, one adult male and one young female. Next observed July 23, three birds. Not seen again until July 31, though I was watching for them almost continually; three birds again on this date. August 4, found them more common, perhaps a dozen birds in all were seen. From this time till August 25 inclusive, I found them regularly in small numbers. On August 8, 11, and 25 they were most abundant, particularly so on the first-named date, when as many as twenty-five or thirty birds were seen. After the 11th there was a decline in the numbers until the 25th, when they were again almost as numerous as on the 8th, but none were observed after the 25th."

The following biographical notes, also made by Mr. Atkins, are submitted. "Bachman's Warbler in its habits is very much like the Parula Warbler (*Compsothlypis americana*). The resemblance is more noticeable when feeding and in search of food. The birds will then penetrate a thick bunch of leaves and go through, over and all around in the most thorough manner in their exploration after insects that appeal to their taste. They are very active, and constantly in motion. They are also quarrelsome, and resent the intrusion of other species. Frequently I have noticed them fighting away the White-eyed Vireo, and where two or more Bachman's Warblers are observed together, one is pretty sure to see them chasing and fighting among themselves. When disturbed or alarmed they are at once alert; a sharp alarm note, something like that of a Yellow-throated Warbler (*D. dominica*), is uttered, but more forcible and clear cut in its delivery. This is accompanied with a few jerks of the tail, and the bird is off to a neighboring tree. They are found alike in the trees, low bushes, and shrubbery, sometimes on or quite near the ground, and seem to prefer the heavy and more thickly grown woods to trees or bushes more in the open. Young birds were quite tame, but the adults as a rule were very shy and difficult to approach after having been once disturbed."

Mr. Atkins secured a series of some forty odd of these interesting birds during the fall migration above alluded to, *i. e.*, during July and August, 1889.

During the season of 1888 the birds remained at Key West somewhat later, the last observed being on September 5.

Helminthophila pinus. BLUE-WINGED WARBLER. — Apparently rare on the Gulf coast of Florida. I have been unable to detect its presence in the vicinity of Tarpon Springs. Mr. Atkins did not meet with it at Punta Rassa, and has only found it on a single occasion at Key West, August 30, 1887, when he secured a single bird and saw no others.

Helminthophila chrysoptera. GOLDEN-WINGED WARBLER. — Another

rare migrant on the Gulf coast. Not met with in the vicinity of Tarpon Springs, nor at Punta Rassa. Mr. Atkins secured an adult female bird at Key West, August 25, 1889. This is the only time he has met with the species at this point.

Helminthophila celata. ORANGE-CROWNED WARBLER. — Not observed at Tarpon Springs, but Mr. Atkins has found it at Key West, as a not uncommon fall migrant. "Common at Key West on October 5, 1887, and for a few days after." "First arrival, Key West, September 8, 1889." —J. W. Atkins.

Helminthophila peregrina. TENNESSEE WARBLER. — Not common as a migrant in the vicinity of Tarpon Springs. Mr. Atkins took examples at Punta Rassa on April 10, 1886, but says "the birds were rare." Again he found them at Key West in October, 1887, associated with *H. celata*, though not nearly as common as that species.

Compsothlypis americana. PARULA WARBLER. — A rather common migrant in the spring and fall on the Gulf coast of Florida. Spring arrival at Tarpon Springs late March and early April, remaining about a month. Returns in late August or the first week of September. Not noted in the winter. Mr. Atkins noted the bird as a migrant at Puntat Rassa at approximately the same dates, and did not observe it there during the winter. He also finds the species at Key West, and remarks as follows: "Found more or less all winter at Key West, but migrants begin to arrive from the south by the middle of March, and all have passed by May 1. Returned July 30, 1888, and soon became very common. First seen returning from north on August 4, 1889."

Dendroica tigrina. CAPE MAY WARBLER. — Not an uncommon migrant in spring in the vicinity of Tarpon Springs, but not so common in the fall. Records for three years at this point give the extremes of dates on which this species was taken or noted as from April 17 to May 4.

At Punta Rassa Mr. Atkins did not find it at all common, and I append his notes from that point. "First spring arrival April 16, 1886. Returning in fall, first seen October 5, 1886." The following observations made at Key West, by the same gentleman are of interest. "At Key West the birds appeared April 11, 1887, and were observed till May 4. They returned October 14 and were here till about November 1. Were common; on October 23, 1887, I took eight specimens without moving from my position. Last year (1888) they arrived and departed about the same time."

Dendroica æstiva. YELLOW WARBLER. — Not common as spring migrants in the vicinity of Tarpon Springs, but a few remain to breed in the neighborhood. After July 20 they become more abundant, the representatives being mostly young birds of the year. After September 15 I have not observed them. Mr. Atkins says: "They are very common fall migrants at both Punta Rassa and Key West, but not noted in either place in the spring, First noted at Key West on July 26, 1889."

Dendroica cærulescens. BLACK-THROATED BLUE WARBLER. — A rather rare spring migrant in the vicinity of Tarpon Springs where I have

observed it sparingly from the 2d to the 10th of May in different years. Most of the individuals noted have been males. Not observed in the fall. Mr. Atkins says of the species: "Rare migrant in spring at Punta Rassa, recorded but once, on May 4, 1886; but in fall it is common at this point, and at Key West it is very common on both migrations and is sometimes to be found in the winter."

Dendroica coronata. MYRTLE WARBLER. — Abundant migrant and common winter resident at all points on the Gulf coast of Florida. The capture of an adult female in worn breeding plumage at Key West, July 28, 1888, by Mr. J. W. Atkins, is of interest and has been recorded in 'The Auk,' Vol. V, p. 430.

Dendroica maculosa. MAGNOLIA WARBLER. — This species is apparently a very rare spring migrant along the Gulf coast of Florida, and though not common in fall is of regular occurrence at that season. Mr. Atkins did not find the species at Punta Rassa, but has detected it at Key West twice in the spring, May 17, 1887, and April 27, 1889, a single bird being taken on each occasion. He sends me no records of it from Key West in the fall.

Dendroica cærulea. CERULEAN WARBLER. — I have not detected the presence of this species at Tarpon Springs or at other points that have been visited on the Gulf coast. Mr. Atkins did not find the bird at Punta Rassa, but took one at Key West, April 16, 1887, and another on April 29, 1889, these being all of his records.

Dendroica striata. BLACK-POLL WARBLER. — A common migrant in both spring and fall on the Gulf coast in the vicinity of Tarpon Springs and at other points where investigations have been carried on. At Tarpon Springs they arrive in spring about the last week in April and remain till about May 12-15.

In this connection it is of interest to record a great mortality among the representatives of this species, during the spring migration of 1888. It is so rare that one finds any birds dying or dead from other than accidental causes, generally connected in some way with innovations caused by the settlement of a country, as telegraph wires, light-houses, and the like, that it seems worth while to give the following details of the epidemic. It was apparently confined, so far as I am aware, to representatives of this species alone, and only to those individuals which visited the Anclote Keys and Hog Island. These Keys are four in number, and are four miles from the main land, in the Gulf, and extend in a north and south line for about twenty-five miles. I found in late April and early May many *D. striata* dead, and others apparently ill unto death on these islands, and though there was an infinite variety of other bird-life represented at the same points, yet no other species seemed to be suffering or was found dead. Of *Dendroica striata* I picked up dead on April 29, 1888, in a short walk on South Anclote Key, upwards of twenty-five.

In the fall the birds pass late in September and during October in numbers.

Mr. Atkins considers the birds as rare spring migrants at Punta Rassa,

but common in the fall, and at Key West they are very common on both migrations.

Dendroica blackburniæ. BLACKBURNIAN WARBLER. —I have but few records of the occurrence of the Blackburnian Warbler at Tarpon Springs and these are subjoined. No. 3847, ♀, *ad.*, September 1, 1886; No. 3704, ♂, *ad.*, October 1, 1886; No. 3705, ♂, young of year, October 1, 1886; No. 3934, ♂, *ad.*, October 15, 1886. Mr. Atkins did not get the birds at Punta Rassa, but has taken them twice at Key West, a single bird on October 21, 1887, and a second on July 29, 1889.

Dendroica dominica. YELLOW-THROATED WARBLER. —A rather common resident bird in the vicinity of Tarpon Springs, and breeds in numbers. Young birds of the year are fully fledged by June 7, No. 6050 of my collection being a male young of the year, taken on this date, and very like an old bird in appearance. Mr. Atkins says the species is a common resident at Punta Rassa and at Key West, particularly in winter. At Key West they do not apparently breed, as they are absent for a short time in early summer returning again about July 25.

Dendroica dominica albilora.—SYCAMORE Warbler.—At Key West on March 27, 1888, Mr. Atkins secured an adult male of this subspecies which he has kindly sent to me and which is No. 5457 of my collection. This is the only record that I am aware of from the region under consideration.

Dendroica virens. BLACK-THROATED GREEN WARBLER. — A rare migrant in the vicinity of Tarpon Springs. My only record is No. 3919, male young of year, October 15, 1886. Mr. Atkins did not meet with it at Punta Rassa and gives it as rare at Key West, where he secured single birds on October 14, 1887, and on January 28 and April 1, 1888.

Dendroica vigorsii. PINE WARBLER. — A common resident in the vicinity of Tarpon Springs, breeding very abundantly. Young female birds of the year in fresh unworn plumage, taken at Tarpon Springs, have the buff shade of the underparts particularly pronounced. This phase seems quite transient, as by the middle of October, or by November 1 at latest, the color has faded very decidedly, and a yellowish wash, before this time not apparent, appears on the throat and fore part of the breast of most individuals of the sex and age refered to.

Dendroica palmarum. PALM WARBLER.—Common migrant and winter resident in the vicinity of Tarpon Springs, and at both Punta Rassa and Key West Mr. Atkins's experience is of a like nature. In the vicinity of Tarpon Springs the first arrivals in fall are about the 22d of September, and in a few days the birds are common. They remain at this point in numbers till from the 5th to 18th of April.

Dendroica palmarum hypochrysea. YELLOW PALM WARBLER.—The examples of this subspecies that I have met with in the vicinity of Tarpon Springs are of rare occurrence, but they regularly appear in small numbers late in March and early in April, remaining but a few days. I have no fall records. Mr. Atkins has sent me notes regarding these birds from both Punta Rassa and Key West, that are of similar import to the above conclusion.

Dendroica discolor. PRAIRIE WARBLER — An abundant migrant, and many breed, in the neighborhood of Tarpon Springs. At this point I have no records of the species in winter, and it is most common in August and September. At Punta Rassa and at Key West it is abundant as a migrant, and it breeds sparingly at the former point. It winters at both places. This information is kindly furnished me by Mr. Atkins. For further remarks on this species, see Auk, Vol. IV, pp. 134-135.

Seiurus aurocapillus. OVEN-BIRD. — A rather common spring and fall migrant about Tarpon Springs, appearing in late March and early April and in September. Mr. Atkins, speaking of the species at Punta Rassa and at Key West, says: "Winters more or less commonly at both places, and is an abundant migrant, especially at Key West in fall. First arrivals at this latter point, August 19, 1889, several birds."

Seiurus noveboracensis. WATER-THRUSH. — A not common migrant in the vicinity of Tarpon Springs, where it occurs in April and in September and October. Mr. Atkins says: "It is one of the most abundant migrants at both Punta Rassa and Key West, but is represented in larger numbers at the latter than at the former point, and the fall migration is greatly in excess of the spring flight. First migrants return to Key West from the north about August 16, 1889."

Seiurus motacilla. LOUISIANA WATER-THRUSH. — I have not met with this species in Florida. Mr. Atkins regards it as rare at Key West, and he did not secure it at Punta Rassa. Key West records are July 16, 1888; April 6, 1889. "Returned from north July 16, and after this time I met with from one to four specimens, but never more than four, and that on but one occasion, every time I collected up to the latter part of August."

Geothlypis formosa. KENTUCKY WARBLER. — A rare migrant on the Gulf coast of Florida. The only record I have is of an adult male taken at Tarpon Springs, April 6, 1886. Mr. Atkins has not met with the species.

Geothlypis agilis. CONNECTICUT WARBLER. — A rare migrant. The only record that I am aware of from the Gulf coast of Florida is that of an adult female, No. 3443, taken at Anclote Keys, May 24, 1887. See Auk, Vol. V, p. 187.

Geothlypis trichas. MARYLAND YELLOW-THROAT. — A common resident species on the Gulf coast of Florida [*G. t. ignota* Chapman], supplemented during the migrations by many individuals on their way north and south. It is, Mr. Atkins says, a migrant at Key West and Punta Rassa, remaining in the winter, but probably does not breed at these points.

My friend, Mr. Chapman of the American Museum of Natural History, New York, has been studying the geographical variations of this species for some time, and to aid him in his investigations I have placed all the material which I have collected in Florida pertaining to the matter at his disposal. He promises an early report which will doubtless be novel, exhaustive, and of great interest.

Since the above was written, Mr. Chapman has concluded his investiga-

tions, which are published in this number of 'The Auk.' See *antea*, pp. 9-14.

Icteria virens. YELLOW-BREASTED CHAT. — The evidence of the occurrence of the Yellow-breasted Chat on the Gulf coast of Florida is so far of a negative character. I have been unable to detect its presence nor has Mr. Atkins found out anything with regard to its occurence at either of the points where he has so carefully collected. It is not a little remarkable that so conspicuous a species, which breeds but little to the north of the region under consideration, and which apparently winters to the south of the United States, should be unknown at these points as a migrant.

Sylvania mitrata. HOODED WARBLER. — A rather common spring migrant in and about Tarpon Springs, but rare in the fall. It appears here late in March or early in April and remains about three weeks. I have no record of its breeding in the area under consideration. The latest fall date is on September 17, 1886. At Punta Rassa Mr. Atkins did not meet with this species, nor has he found it at all common at Key West. At that point his records are March 18, April 1 and 3, August 30, and September 13, 1887, a single bird on each day. "1889, arrived from north August 19, two or three seen later."

Setophaga ruticilla. REDSTART. — A not very common spring and fall migrant in the country about Tarpon Springs. In the spring it passes through here during the first two weeks in May, and appears again returning about August 5 to 10 and remains till the first of November. Mr. Atkins gives it as a rare spring and common fall migrant at Punta Rassa and as equally common both spring and fall at Key West. His notes in regard to the latter point are: "Last migrants northward May 21, 1887. Returned August 9, 1887; young birds of year, both sexes, taken. 1889, July 22, young of year and adult female; July 30, adult male."

(*To be continued.*)

NOTES ON *PIPILO FUSCUS MESOLEUCUS* AND *PIPILO ABERTI*, THEIR HABITS, NESTS AND EGGS.

BY CAPT. CHARLES E. BENDIRE.

THE CAÑON TOWHEE is a common resident throughout the year, in the southern portions of Arizona at least, and I found it especially abundant during the breeding season in 1872 in the vicinity of the present site of Camp Lowell, near Tucson, the principal town in the Territory at the time. The bird was first obtained by Dr. Kennerly, the naturalist of the Pacific Rail-

road expedition along the 35th Parallel, on Bill Williams Fork, Arizona, February 5, 1854, and was shortly afterwards described by Prof. Spencer F. Baird, as *Pipilo mesoleucus*. In the A. O. U. Code and Check-List it is placed as one of the races of the Brown Towhee (*Pipilo fuscus*). These, besides the bird in question, are *Pipilo fuscus albigula*, found in Lower California, and *Pipilo fuscus crissalis* in California proper.

If eggs counted for anything in the relationship of birds, *Pipilo fuscus mesoleucus* then would certainly have to be classed as a distinct species from the other two forms, and I always held that it should till recently, after examining a series of skins of these three forms in the National Museum collection, I found that the California race, *P. fuscus crissalis*, was the darkest colored, as well as the largest in size, showing more of a rufous tint generally. *P. fuscus mesoleucus* comes next in size, but is much paler than the former, especially about the throat, and has a distinct reddish cap on the head. *P. fuscus albigula* is the smallest of the three, has the reddish cap also, and is generally still paler colored throughout than *P. fuscus mesoleucus*, but comes very close to this in general appearance, and if a number of unmarked skins of these two forms were mixed together, it would certainly be difficult to tell where one race began and the other ended. Now one might reasonably presume that the eggs of the last two races at least would resemble each other closely, but they do not.

The eggs of *P. fuscus crissalis* and *P. fuscus albigula* resemble each other both in their ground color and in markings. The ground color is a light greenish blue, very similar to that of the eggs of *Agelaius phœniceus*. They are sparsely spotted or blotched with a very dark brown, almost a black, the markings being principally confined to the larger end of the eggs; occasionally these spots are connected with fine hair-like lines; there are also a few lighter colored shell markings of lavender and purple to be found in most of the specimens. Their shape varies from ovate to elliptical ovate. The average measurement of fifty specimens of *P. fuscus crissalis* is .98 × .72 inch, the largest egg measuring 1.03 × .78 inch, the smallest .91 × .70 inch. The average measurements of twenty-three specimens of *Pipilo fuscus albigula* are as follows: average size .90 × .66, largest egg .98 × .69, smallest .80 × .64 inch. In the eggs of the Saint Lucas Towhee, the ground color is a trifle paler also, due no doubt to fading out by age. For the purpose of better comparison I gave the description of the above races, although not

strictly within the scope of this paper. It will be seen that the eggs of *P. fuscus mesoleucus* are entirely different, both in ground color and in the amount of markings, from the other two races. Similar cases occur in the genera *Spinus*, *Aphelocoma*, *Harporhynchus*, as well as others, showing conclusively that the egg alone cannot always be relied upon, to point out the relationship of species.

But to come back to the subject proper. No mention, as far as I am aware, has been made of the eggs of this subspecies by the earlier ornithological writers, excepting Dr. J. G. Cooper who says in his 'Ornithology of California,' page 248, as follows: "This species is very abundant in southern Arizona, where its habits are much like those of *P. abertii*. The eggs resemble those of *P. fusca*," The late Dr. T. M. Brewer published the first correct description of these eggs on page 516, Appendix to Vol. III, 'History of North American Birds' by Baird, Brewer and Ridgway, from specimens collected by the writer in 1872, in the vicinity of the present site of Camp Lowell, about seven miles northeast of Tucson, Arizona. Here I found the Cañon Towhee nesting quite abundantly on the more or less open plains immediately back from the Rillitto Creek bottom, which are here covered with straggling mesquite trees and bushes of various kinds, some of them attaining a height of ten or twelve feet, interspersed here and there with cacti and yuccas of different species, the cholla cactus predominating. The nests were usually found from one to two hundred yards distant from the creek bottom and scarcely ever more than a mile away from this, but never in the bottom proper, the chosen home of *Pipilo aberti*. According to Mr. W. E. D. Scott, who has done so much excellent work in Arizona in more recent years, the Cañon Towhee is equally abundant in the neighboring mountains and ranges well up to the pine forests. He found his first nests in the Catalina Mountains at an altitude of 3500 feet, about the middle of March, and according to him the breeding period extended well into July.* To explore the same localities that Mr. Scott did in 1883, would have been exceedingly unwholesome in 1872, on my second visit to Arizona, and still more so in previous years. The chances would have been more than even, that an inquisitive naturalist, venturing into the recesses of the Catalina Mountains, even

* Auk, Vol. IV, No. 3, July 1887, p. 204.

with a fair-sized and well-armed party, would have been himself collected sooner or later by one of Chief Cachise's enterprising cut-throats who then roamed over these mountain ranges more or less at their own sweet will. The ornithologist collecting in Arizona at the present day cannot imagine the changes that twenty years have brought about in that country, and it is hard to realize the difficulties under which the earlier explorers labored. It would take too much space to enumerate even a few of these here, but having entered Arizona myself as early as 1857, although I had no means to collect anything then, I am quite competent to judge what risks and discomforts the pioneer naturalists of Arizona, Drs. Coues, Cooper, and Palmer, underwent in the interests of science. Only on my second visit to the Territory in 1872 was I enabled to add a little to our knowledge of the avifauna of that even then still little known region. Fortunately there was a cessation of hostilities on our part, only, however, against the hostile Apaches, for a portion of the year, as peace commissioners had been sent out from Washington to make terms with the hostiles, which enabled me to make a few interesting discoveries which I could not have done otherwise.

I found my first nest of *Pipilo fuscus mesoleucus* on June 4, 1872; it contained two fresh eggs, and was placed in a mesquite bush about four feet from the ground and not particularly well concealed. According to my observations (I examined some seventy nests) by far the greater majority were placed in low mesquite trees, sometimes close to the trunk, in the forks of limbs, and again well out on a branch, rarely more than eight feet from the ground. An occasional nest was placed in a cholla cactus. None were found directly on the ground. The nest is a large one for the size of the bird, loosely constructed externally. It is composed of weed stalks and coarse, dry grasses, and is lined with fine thread-like rootlets and horse-hair, when the latter is obtainable. It is an unusually deep nest. One collected by Lieut. H. C. Benson, 4th Cav., U. S. Army, at Fort Huachuca, Arizona, April 9, 1887, and now before me, measures outwardly 5½ inches across, inner diameter 3 inches, outer depth 3½ inches, inner 2 inches. Externally it is principally constructed of the stems and dry blossoms of a species of *Gnaphalium*, small twigs, leaves, etc. The inner lining consists of the seed-tops of grasses belonging to the genus *Fistuca* and hemp-like plant fibres.

The eggs are usually three in number; about one nest in ten contains four; occasionally I have found the bird sitting hard on but two, probably a second or third brood. On comparing notes with Mr. Herbert Brown of Tucson, an enthusiastic naturalist, who has made careful and extended observations over pretty much the same ground I did in 1872, I found the nesting season of 1872 must have been an unusually late one, as he has since then found many species breeding there fully two months earlier than I did. Nests of this species with perfectly fresh eggs were found by me as late as Sept. 11, and it is reasonable to presume that as many as three broods are raised by some of these birds at least.

The ground color of the eggs of the Cañon Towhee is a very pale bluish white, or very light pearl gray, scarcely an egg in a series of one hundred and three specimens can be called pure white. As far as markings are concerned, these eggs can be divided into two types. In one the spots are sharp, well defined, occasionally connected with each other by lines and scrawls, and principally concentrated about the larger end. Their color is a very deep brown, almost a black. This pattern includes the less heavily marked specimens. In the second type, the markings are less clearly defined, more irregular in shape, mere blotches, and much more profuse. The color is less deep, more of a claret brown or vinaceous rufous. In addition fine shell markings of lavender and heliotrope purple are scattered more or less profusely over the entire egg in both types. The eggs bear a certain resemblance to those of *Sturnella*, especially to heavily marked specimens of the western race, *Sturnella magna neglecta*. Nearly all the eggs of *Pipilo fuscus mesoleucus* are much more heavily marked than those of the other two races, aside from the radical difference of the ground color, which is also more lustrous. In a series of one hundred and three specimens before me, all but eleven collected by myself, there is considerable difference both in size and shape. The eggs are mostly ovate, some elliptical ovate. The average size of the series before me is .92 × .69 inch. The largest egg measures 1.04 × .71, the smallest .81 × .66 inch, and a runt egg of this species in the collection measures but .70 × .56 inch.

In its habits and its call notes the Cañon Towhee does not differ materially from *Pipilo aberti*. Neither can be called a songster. It is more or less terrestrial at all times, rather shy,

sticking close to the underbrush, but not nearly as much so as *Pipilo aberti.* It is much more easily obtained, as the localities frequented by it during the breeding season are much more open and free from undergrowth and creeping vines than the bottoms where the former lives. During winter I have noticed it frequently associated with other ground-feeding species like *Zonotrichia leucophrys* and *intermedia*, *Melospiza fasciata fallax*, *Calamospiza melanocorys*, *Peucæa carpalis* and *arizonæ*, and *Amphispiza bilineata*, as well as others. Large flocks composed principally of the species mentioned would frequently alight on the open ground about my camp, especially about the picket line where the cavalry horses were tied up at night and fed, and at such times they would allow themselves to be approached rather closely, and it was generally an easy matter to select such specimens as one wanted while they were searching for food.

Pipilio aberti.

The life history of Abert's Towhee seems to be much better known than that of the Cañon Towhee; a pretty full account of its habits is given in Vol. II, 'History of North American Birds,' Baird, Brewer and Ridgway, pp. 128-130. It appears that its nest and eggs were first discovered by Dr. J. G. Cooper, and described by him from specimens taken near Fort Mohave, Arizona, April 1, 1861. The types, Nos. 7275 and 7276, are still in the National Museum collection, in a good state of preservation.

Abert's Towhee is the largest of the plain colored Pipilos of the Pacific coast, and a quite different looking bird from the Cañon Towhee, its most striking characters being its uniform pale cinnamon color, only relieved by a slight edging of black around the base of the bill, and its unusually long tail. I found it a quite common resident, and breeding abundantly, in the vicinity of my camp on Rillitto Creek, if possible even more common than the Cañon Towhee. In its habits it is one of the shyest birds I know, and although I could readily find one of its nests, every hundred feet, in a certain limited area, it was quite a different matter to secure the parent for identification. I wasted more than one hour in watching for these birds. Their loud alarm note of *huit, huit*, indicated their whereabouts readily enough, but getting a good view of them was another thing. Even during the winter

months they were hard to secure, and not by any means as social in their habits as the Cañon Towhee. I found my first nest with eggs on May 13, 1872, placed in a willow thicket, about three and a half feet from the ground. Outwardly this was composed exclusively of the soft inner bark of the cottonwood, resting on a slight platform of small sticks and dry weed stalks. Inside the nest was lined with finer material of the same kind, and a few horse-hairs. This first nest was a rather flimsy affair; most of those found subsequently were much better constructed, principally dry weed stalks, the soft inner bark of dry cottonwood logs, swamp grasses, fibres of wild hemp, an occasional leaf, and fine roots, entering into the composition of the nests. A few only were lined with horse-hair, a material probably furnished by my herd which grazed in the vicinity and was daily driven into the creek bottom to water. The measurements of a nest taken by myself are 5½ inches across externally by 4 inches in depth. Inner diameter, 3 inches; depth, 2½. The inner cavity is very small for the size of this bird, scarcely large enough to accommodate the body. Its long tail sticks up out of the nest, when sitting on its eggs, at a perfect right angle, and it certainly must be an uncomfortable position for the bird to stay in for any length of time.

All the nests I have found, about eighty in number, were placed in the densest thickets in the creek bottom proper, with but one single exception. This I found in the forks of a mesquite bush about four feet from the ground, on the open plain fully four hundred yards from its customary breeding places, and as this nest contained the only set of four eggs I found of this species, I made certain of the perfect identity of the parent by shooting it finally, after a tedious wait of over an hour. Fully sixty of these nests were placed in willow thickets, or on willow stumps around the tops of which young green sprouts had grown out again, the top of the stump itself making an excellent base for the nest. I found many such stumps in the creek bottom, cut off about three or three and a half feet from the ground. With the characteristic laziness of the native Arizonian, I presume, they found it easier to cut them at that height, as it obviated bending their backs to a certain extent. These young willow trees were from five to six inches in diameter, and were used for stringers or rafters on their adobe huts, to support the heavy dirt-covered roofs. I did not find a single nest directly on the ground; usually they were from two and a half to three and a half feet above it, and seldom more than five

feet up. After willows, a species of ash was the next favorite, and I found one nest in such a tree fully twenty-five feet from the ground, placed in a fork in its topmost branches. Now and then a nest was placed in a bushy mesquite tree, and a couple of nests I found in wild currant bushes.

The usual number of eggs laid by Abert's Towhee is three, sets of only two are by no means unusual, however; in but a single instance, already mentioned, I found four. Their ground color is a pale clay-blue, paler than in the eggs of *Pipilo fuscus crissalis* and *P. f. albigula*. The markings, as in those, are sparse, sharp, and well defined, generally heaviest about the larger end, in color very dark brown, almost black in some, in others these dark spots are less intense and margined with vinaceous and rufous about the edges. In some specimens these spots are connected with each other by fine hair-like lines and tracings of different shades of brown or vinaceous, giving a very pretty effect. There are also some paler shell markings of lavender and purple to be found on some specimens, but in a majority of eggs these are wanting. The shape of most of the eggs is ovate, a few are elliptical, others elongate ovate. The average size of eighty-three specimens, all but six collected by myself, is .94 × .70 inch. The largest egg measures 1.08 × .70, the smallest .82 × .69 inch.

I believe fully three broods are raised during the season, as I found a perfectly fresh set of eggs on Sept. 10. Several other species also were laying then. Abert's Towhee has many enemies to contend against during the breeding season, and it is questionable after all, if they ever succeed in raising more than a couple of full broods. Small parties of Arizona Jays, from the mountains in the vicinity, were more than once met with by me, evidently bent on an egg-hunting expedition themselves, and no doubt some of the numerous species of Hawks, Owls, squirrels, and snakes, especially some of the latter, destroy a good many of their young as well as the eggs. The shrill cry of alarm uttered by these birds when in distress, was more than once heard by me, when still quite a distance from the nest, due no doubt to the presence of some other intruder than myself. I frequently found broken eggshells lying at the foot of the empty nest, where a day or two previously I had seen a single egg and had left it for the set to be completed.

OBSERVATIONS ON SOME OF THE SUMMER BIRDS OF THE MOUNTAIN PORTIONS OF PICKENS COUNTY, SOUTH CAROLINA.

BY LEVERETT M. LOOMIS.

SOMEWHAT over a dozen years ago, having become interested in the birds of the neighborhood of my home, the plan was conceived of making an ornithological survey of the State — a systematic study of the avifauna of the various sections exhibiting distinctive physical characteristics. With the progress of my researches in Chester County, it became evident that the Piedmont Belt was an exceptionally inviting field — a veritable *terra incognita* of surprising richness, —and that years of continuous effort should be devoted to its investigation. In consequence all thought of work in the mountainous districts was deferred until the time when further observation appeared to warrant an enlargement of territory. In the early part of July, 1886, I made a reconnaissance of the portions of the mountain region lying in Pickens County in the vicinage of Mt. Pinnacle — the highest point in the State — and the following season I made a second visit of a week beginning June 18, and on June 4, 1888, a third visit of three days. In 1889 I again continued my investigations, but instead of proceeding, as on former occasions, by rail to the point most convenient to Mt. Pinnacle — Easley, seventeen miles distant — I travelled across the country with a team of mules and a heavy covered wagon. Accompanied by a young colored man as a helper, I set out from Chester, June 3, and accomplished the journey in four days and a half. The influence of the mountains became early apparent, as I advanced, in the diminishing abundance of *Mimus polyglottos* and in the increasing prominence of *Turdus mustelinus*, and also by the presence of *Pipilo erythrophthalmus* near Spartanburgh. I began work on the afternoon of my arrival, June 7, and continued without interruption until July 2, the time of my departure for home. The second day after reaching the scene of my labors a long drought which had been prevailing terminated, and, with but few exceptions, rain fell in some part of every day during my entire stay.

But in spite of this drawback field-work was diligently pressed, though I was compelled to put up at the house of a friend at the foot of Mt. Pinnacle instead of camping out as I had intended. The mules I had with me, however, enabled me to reach the summits and other places more remote without great loss of time.

The mountain region of South Carolina may be briefly defined as a wedge-shaped territory, about one hundred and fourteen miles in length and from eight to twenty-one miles in width, stretching along the North Carolina boundary from the vicinity of Henry's Knob and the King's Mountain chain on the east to the Georgia line on the west, traversing the counties of York, Spartanburgh, Greenville, Pickens, and Oconee. Within this region there are two distinct districts; an outer one characterized by widely isolated elevations arising from a country essentially similar in general aspect to the Piedmont section, and an inner one, truly mountainous and properly a part of the Blue Ridge system, extending in an irregular belt — nowhere, perhaps, exceeding a dozen miles in width — along the border from the State of Georgia to the northwestern corner of Spartanburgh County.

About Mt. Pinnacle the mountains assume the form of successive ranges, broken up by gaps into numerous peaks, and separated from one another by narrow valleys. Mt. Pinnacle, proper, is but a single point, with lateral spurs, in a chain lying between the Oolenoy and the South Fork Saluda. Table Rock, several miles away, is at the eastern terminus, the general trend of the range being east and west. The sides, which are very steep, are broken up into narrow ridges and hollows; the numerous brooks flowing from the latter rendering the region one exceptionally well watered. The summits culminate in mere points and sharp roof-like ridges — the apex of Mt. Pinnacle tapering to a surface of only a few square rods in extent. As would naturally be inferred from the name, Table Rock furnishes a partial exception to this statement. Just below the highest portion, and at a spot where a fine spring issues from the soil, there is a wooded area, comparatively level, of upwards of twenty-five acres. On the slopes, near the crest of the range, a few acres of fairly even ground are a rarity. Such places, forming little 'benches' and coves, are always compensated for by sudden drop-offs, crags and cliffs abounding. The most noteworthy precipice of the locality, as well as of the whole mountain region, is at Table Rock, where

there is a sheer descent, according to local measurement, of nine hundred feet. The other ranges of the immediate vicinity do not differ strikingly from the Mt. Pinnacle range, though some are less precipitous and offer more favorable opportunities for agriculture. The absence of plateaus and other extended levels adds greatly to the difficulty of studying the avian fauna of the mountain tops. A few shots generally drive the birds to the steeper declivities where prolonged pursuit is not feasible. Often birds will be plentiful a few hundred feet below the station occupied, in situations practically inaccessible, or which can be reached only by long detours entailing exhausting exertion.

The Oolenoy Valley (or Oolenoe as formerly spelled by some writers), so often referred to in the subjoined notes, is a fertile bottom following the Oolenoy Creek from its junction with the Saluda (a branch of the Broad) to the watershed separating its south fork from the headwaters of an affluent of the Savannah in Reedy Cove. The High-low Gap, also frequently mentioned, is a dividing ridge between the north prong of the Oolenoy and the south branch of the Saluda.

It will be seen that the territory actually covered by my explorations is very limited; the whole tract, bounded by Table Rock on the east, Reedy Cove on the west, the High-low Gap on the north, and the Oolenoy Valley on the south, perhaps aggregating not above twenty-five square miles.

Except where the ground is sterile or rocky, the mountains are covered with woods of hardwood growth. There are but few clearings, the settlements being almost exclusively confined to Reedy Cove and the Oolenoy and Saluda Valleys. Mt. Pinnacle is wholly uninhabited, although there is a little 'deadening' near the summit where a few acres of hillside were formerly cultivated. Though there are fine forests, as at the top of Mt. Pinnacle and on Rich Mountain at Reedy Cove, still the timber is not of great age. Men of advanced years can remember when 'Bald Knob' (the local appellation of Mt. Pinnacle) was, in fact, truly bald. The name, 'Mt. Pinnacle,' is of very recent origin, having been bestowed by the engineers of the United States Coast and Geodetic Survey. For fear of unduly extending these preliminary remarks, allusion is made only to such floral features as forcibly arrested an eye accustomed to the woodlands of the lower country. Of the deciduous trees — aside from the oaks and hickories — the chestnut is

the most conspicuous. On the higher elevations, in some places, it predominates over all other kinds of growth. Hemlocks, solitary or in small groups, occur at all altitudes in the ravines and coves, interspersed among the hardwood. Scattered through these hollows and on their sides, in smaller numbers, are white pines, while in the damper locations an occasional black spruce towers mast-like amid the other trees. On the poorer ridges the Jersey or scrub pine abounds. The rarer Table-Mountain pine is accounted among the wonders of Table Rock. Rhododendrons everywhere border the wooded streams. The last season the first blossoms were noticed June 15.

Of the mammals, I have but little of pertinence to note. I did not meet with *Sciurus hudsonius* or *Lynx borealis canadensis*, but both species are probably present, as I was told that the 'boomer' was found on the mountains west on the Big Estatoe, and that a large cat, differing distinctively from the common one, was sometimes taken about Mt. Pinnacle by the wild-cat hunters. The ground squirrel (*Tamias striatus*) is abundant and the ground hog (*Arctomys monax*) common.

Three avifaunæ meet in the South Carolina highlands — the Louisianian, Carolinian, and Alleghanian. The first-named is not prominent, the local ornis being characterized by species representative of the Carolinian and Alleghanian, those of the former preponderating. The general influence of the mountains is of a nature so potent as to preclude the division of the two thousand feet, more or less, arising above the Oolenoy Valley into distinct faunal zones — sharp distinctions of this kind not existing. In considering the relation between distribution and altitude, woodland birds alone are of significance, for these mountain slopes do not supply the conditions essential to birds inhabiting open situations — a modifying circumstance always to be kept in mind in the perusal of the statements that follow. However, irregular lines of limitation with abrupt sinuosities may be drawn for a few species, the Alleghanian being confined above 2000 feet and the Carolinian chiefly below 2500 feet. While these boundaries appear to be well sustained locally, still a wider field would probably show, in some cases at least, a more general distribution. The universal dispersion of *Dendroica virens* in the vicinage of Mt. Pinnacle and its reported restriction to the Canadian fauna in the higher mountains of North

Carolina, give peculiar emphasis to the fact that a single locality cannot safely be accepted as a criterion in the determination of vertical distribution, local conditions — not always obvious — often exercising greater influence than does mere elevation. The rigid adherence of *Seiurus aurocapillus* to the belt above 2000 feet — a circumstance naturally not to be expected, if altitude were absolutely paramount, of a species occurring within the bounds of the Carolinian Fauna — strongly contrasts with the wide ranging of *Dendroica virens*. The uniform allotment of *Helmitherus vermivorus*, *Seiurus motacilla*, *Geothlypis formosa*, *Thryothorus ludovicianus*, *Parus bicolor*, *Parus carolinensis*, shows what little weight height actually has in these mountains in governing the upward range of some of the characteristic components of the Carolinian fauna. Of species whose range seems definitely restrained by altitude, it would naturally be expected that there would be a gradual diminution in abundance in receding from base or summit, but this is not strictly the case — the highest and lowest points often exhibiting, in a given area, numbers not unequal. The pushing up along the barren ridges of *Sitta pusilla* of the Louisianian fauna strikingly illustrates the force exerted by floral surroundings. It should be added, further, that the streams of larger size are apparently as influential in extending the altitudinal range, in certain instances, as are rivers the latitudinal. The north fork of the Oolenoy well exemplifies this, the extreme limits, so far as noted, of a number of species being attained on this water-course near the High-low Gap.

To summarize, while the predominant factor in the constitution of the bird-fauna of these mountains is altitude, still it does not strictly control vertical distribution, its immediate force being modified,

1. By the combined effect of the mountains, this collective influence pervading the lower grounds to such a degree as to check the extension of the more susceptible Carolinian forms and to increase that of some Alleghanian.

2. By the flora, conditions of this nature — often of great potency where local habitat is concerned — extending or curtailing the general range.

3. By streams (natural highways encouraging extension of range) and other surface features, upon which depends the pres-

ence or absence of certain species — local environment in some instances counterbalancing disadvantages of elevation.

4. By artificial circumstances, such as are brought about through the agency of man.

5. By influences not apparent, as manifested in the selection of one locality as a place of residence and the rejection of another, to all appearance not dissimilar.

6. By inherent power of adaptation in certain Carolinian species, notably *Parus bicolor* and *Parus carolinensis*, to the conditions incident to altitude, irrespective of other modifying considerations.

LIST OF ELEVATIONS.

Mt. Pinnacle	3436 feet.
Table Rock	3124 "
Pickens Court House	1162 "
Spartanburgh Court House	887 "
High-low Gap	2763 "
Reedy Cove	1810 "
Oolenoy at foot of Mt. Pinnacle	1123 "

I am indebted for the first four of the above measurements to the U. S. Coast and Geodetic Survey. The last three were kindly supplied by a friend who obtained them directly from the engineers engaged in making the preliminary surveys of the projected Carolina, Cumberland Gap, and Chicago Railroad.

A few words of explanation are necessary to a proper understanding of the appended notes. In general, when no year is given, 1889 is meant. Large birds, when spoken of as common, are not to be regarded so in the same sense as smaller ones.

1. **Ardea herodias.** GREAT BLUE HERON. 'CRANE.'—July 1, one was seen in the Oolenoy Valley at the foot of Mt. Pinnacle. The day following another—perhaps the same bird—was observed lower down the valley opposite Table Rock. From what I learned by inquiry, I judge that this species is not as plentiful as in the Piedmont Region. It is said to occur chiefly during wet spells.

2. **Ardea virescens.** GREEN HERON.—This Heron was met with during June, 1887, and again in June, 1889, along the Oolenoy, where its presence appears to be not infrequent.

3. **Colinus virginianus.** BOB-WHITE. 'PARTRIDGE.'—While this bird is very common, especially about the settlements, still it is apparently not as abundant as in Chester County and other portions of the upper country away from the mountains.

4. **Bonasa umbellus**. RUFFED GROUSE. 'PHEASANT.'—The Pheasant is fairly entitled to be ranked as common in this section. It is not confined to the mountain tops during the month of June but is found from base to summit, and is not more numerous at the higher elevations than the lower. At this season the mulberry trees are in fruit, and are much resorted to. Two of these trees at the foot of Mt. Pinnacle were visited daily by Pheasants during my stay. At the base of Rich Mountain, in Reedy Cove, I rode up to three that were feeding on wild strawberries in a little cove on the edge of the woods. Huckleberries also form a part of their diet at this season, and dogwood berries are said to be a favorite addition to their fare in the autumn. From what I gleaned from hunters, it seems that the wild-cat is the great enemy of the Pheasant. I was informed that both old and young were preyed upon, and that a young brood was often totally destroyed. They suffer but little from the gun, as they are not regularly pursued as objects of sport. (For previous notice, see 'The Auk,' Vol. III, Oct., 1886, p. 483.)

I did not meet with the Wild Turkey, and, from all accounts, I judge that it is not as abundant as in the lower country. Its increasing scarcity is attributed to the hunters and to the wild-cats.

5. **Zenaidura macroura**. MOURNING DOVE. 'DOVE.'—Only tolerably common, and noted principally in the cultivated valleys.

6. **Cathartes aura**. TURKEY VULTURE. 'BUZZARD.'—This species is independent of altitude, and is very common over the highest peaks as well as in the lowest valleys.

7. **Catharista atrata**. BLACK VULTURE. 'CARRION CROW.' — The Carrion Crow is well known throughout this region, but is not regarded as common. It is seen most frequently, I have been assured, about large carcases. The mountain sides and tops serve as a stock range for the settlements in the valleys, and it not infrequently happens that cattle venture too near the cliffs and lose their footing and fall over, thus furnishing a continual source of supply to the carrion-feeding birds. I did not meet with this Vulture except on one occasion, June 22, when two individuals and a Turkey Buzzard were seen soaring over the valley of the Saluda, as I sat on the verge of the precipice at Table Rock. In their gyrations they finally drew near, and skirted along the face of the cliff on a level with the place where I was sitting.

The Swallow-tailed Kite (*Elanoides forficatus*) is a summer visitant at times in the Oolenoy and other valleys. I did not ascertain, however, whether it was known to breed. Aug. 6, two were shot, a friend writes, on Little Estatoe Creek, three miles west of Mt. Pinnacle. The tail of one of the specimens was forwarded to me at Chester for examination.

8. **Accipiter cooperi**. COOPER'S HAWK. 'CHICKEN HAWK.' 'BLUE-TAILED HAWK.'—About the settlements, apparently as plentiful as elsewhere in the State. During the latter part of my last visit one harassed the chickens daily at the house where I was stopping.

9. **Buteo borealis**. RED-TAILED HAWK.—Rather common and generally distributed.

10. **Falco peregrinus anatum**. DUCK HAWK. 'SPARROW EAGLE.'—As my guide and myself were picking our way in a dense fog along the broken trail at the foot of the precipice at Table Rock on the 15th of June, three Duck Hawks with loud cries bore down upon us from the mist-hidden crag above. They flew about in a manner that plainly indicated that our presence filled them with anxiety. Occasionally one would alight for a few moments on a dead tree. Several shots were fired, but the towering cliff led me to miscalculate the distance, and the only effect produced was to frighten them away. In about half an hour they reappeared, screaming as before. In the meantime the fog lifted and the surface of the cliff became distinctly visible. The object of their solicitude was soon apparent, for one of them, with a ground squirrel in its talons, alighted in a crevice in the massive wall of rock. Several unsuccessful attempts were made to obtain a specimen, which resulted finally in driving them from the scene. Four days later I visited the spot a second time hoping to secure one with a rifle, but they had grown extremely shy, remaining out of sight at the top of the precipice. On the 22d I rode across the range from Mt. Pinnacle to Table Rock and, when the brink of the cliff was reached, the three Falcons were again encountered, but the efforts put forth to capture one were as unavailing as were those on the former occasions. I did not find this bird elsewhere in my excursions about the mountains.

I was told that the Bald Eagle in the past bred at Table Rock. There is a great hole—affirmed to have been formerly a nesting site—in an inaccessible part of the cliff which still bears the name of 'the eagle hole.' The presence of an Eagle now, at any season, is an exceptional occurrence, and is of sufficient interest to awaken general comment. The Golden Eagle probably occurs during winter, if not at other times of the year. The Eagle, however, spoken of by my mountain friends is asserted to be a white-headed one.

11. **Falco sparverius**. AMERICAN SPARROW HAWK.—So far as my observation extended, the Sparrow Hawk was not numerous.

12. **Coccyzus americanus**. YELLOW-BILLED CUCKOO. — Tolerably common. Familiarly known throughout the region as the 'Rain Crow.'

13. **Ceryle alcyon**. BELTED KINGFISHER. 'KINGFISHER.'—One was seen July 9, 1886, along the Oolenoy at the bottom of Mt. Pinnacle.

14. **Dryobates villosus audubonii**. SOUTHERN HAIRY WOODPECKER. —Although the Hairy Woodpecker is common and generally dispersed, I did not satisfactorily ascertain whether other than the southern form was present. A female, shot June 6, 1888, at an altitude somewhat above 3000 feet measured in length, 9 in., tail, 3.4 in., dimensions that are indicative of the typical *D. villosus*, but the wing measurement (chord) of this example was only 4.6 inches.

15. **Dryobates pubescens**. DOWNY WOODPECKER.— Observed from the valleys up the mountain sides to their summits; moderately common.

16. **Ceophlœus pileatus**. PILEATED WOODPECKER. 'WOOD HEN,' etc.—For so large a bird, common. Generally distributed. Though ordi-

narily wary, sometimes they appear to lose their caution, I have been informed, and several, as if actuated by an overpowering curiosity, will follow a squirrel hunter about from place to place, keeping up such a clamor that he is compelled to resort to his gun to free himself from their annoying attentions.

17. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER. — A few were noticed in the Oolenoy Valley. They were more abundant in the lower part of the County away from the mountains.

18. **Melanerpes carolinus.** RED-BELLIED WOODPECKER.—The lower elevations seemingly preferred; tolerably common.

19. **Colaptes auratus.** FLICKER. 'YELLOW-HAMMER.'—I found the Flicker common, ranging from the lower valleys over the mountain tops.

20. **Antrostomus vociferus.** WHIP-POOR-WILL.—In the neighborhood of the house where I stayed the characteristic notes of the Whip-poor-will greeted the ear nightly. It did not appear to be a very common bird, however.

The Chuck-will's-widow was not heard, but of its occurrence I was well assured. It is known as 'Dutch Whip-poor-will,' and its notes were imitated in such a manner as to leave no doubt in my mind as to the reliability of the statements made concerning its presence. It was reported as being rare.

21. **Chordeiles virginianus.** NIGHTHAWK. 'BULL-BAT.'—Only seen in the lower part of the County. Said to visit the Oolenoy Valley at times.

22. **Chætura pelagica.** CHIMNEY SWIFT. 'CHIMNEY SWEEP.' 'CHIMNEY SWALLOW.'—Common; its distribution uninfluenced by elevation. According to local information, it breeds in chimneys about the settlements, and in hollow trees back in the mountains. I spent a day in making a trip to Reedy Cove, expressly to see one of these trees. The tree, a 'poplar,' was a mere living trunk, and stood in the edge of a field on a little brook at the foot of a wooded mountain. It inclined fully 30° from a perpendicular, and was about forty feet high and eleven feet in circumference and hollow from the ground upward. The top was broken off, affording an entrance to the hollow within. I learned that it was chiefly a roosting tree, and that the fall was the principal time of the year when it was occupied. Then, at the close of day, I was told, "two or three hundred" would circle around and, at brief intervals, a few would detach themselves from the main body and enter the cavity. At last the whole flock would be settled there for the night. I saw but a single Swift near the place during the time of my visit, midday.

23. **Trochilus colubris.** RUBY-THROATED HUMMINGBIRD.— Equally common over the wooded mountains and in the open valleys below. I did not try the experiment, but it is averred that corn whiskey, with sugar dissolved in it, placed in flowers much affected by these little pygmies intoxicates them so effectually that their capture by the hand is rendered an easy matter.

24. **Tyrannus tyrannus.** KINGBIRD. 'BEE-BIRD.'—Not particularly

common, and restricted to the cultivated valleys. It is said to be most numerous about places where bees are kept.

25. **Myiarchus crinitus.** CRESTED FLYCATCHER.—Of universal dispersion throughout the region; common.

26. **Sayornis phœbe.** PHŒBE.—About the town of Chester, I have never met with the Phœbe during the month of June. In my wagon tour across the country it was first encountered, June 5, at Fair Forest, five miles west of Spartanburgh. On the same day its loud cries were heard at the South Fork of Tiger River, also in Spartanburgh County. June 4, 1888, a pair were found established at a small mill-pond midway between the villages of Easley and Pickens. At Mt. Pinnacle, it is common in the vicinage of water, ranging up to about 2500 feet. Back on the heights, sheltered situations in the walls of rock are frequently selected as nesting places. Young birds, just ready to leave the nest, were seen as late as June 23 in 1887.

27. **Contopus virens.** WOOD PEWEE.—Conspicuously common everywhere in the woods.

28. **Empidonax acadicus.** ACADIAN FLYCATCHER.—Most widely dispersed at the lower levels. Along the larger streams it reaches a higher elevation than elsewhere in the mountains. On the north fork of the Oolenoy, near the High-low Gap, it was common at 2500 feet, the highest point at which the species was observed.

(*To be continued.*)

ON THE WINTER DISTRIBUTION OF THE BOBOLINK (*DOLICHONYX ORYZIVORUS*) WITH REMARKS ON ITS ROUTES OF MIGRATION.

BY FRANK M. CHAPMAN.

AMONG our summer resident land birds the Bobolink is in its migrations remarkable for two things; first, the extent of its wanderings during the winter; second, the comparatively late date at which its spring migration is completed. These are both well-known facts, and I shall here simply endeavor to bring forward and arrange the records on which they are based, adding some new data furnished by an examination of the material in the American Museum of Natural History. It is to be regretted that a large proportion of the extra-limital records consist merely of mention of the bird's name and the locality of its

capture without giving the data of its occurrence, thus rendering impossible a satisfactory study of its migration or an accurate knowledge of the area it inhabits during the winter.

In the neighborhood of New York City the Bobolink commences its southern migration in July, great numbers flocking at this season in the wild rice (*Zizania aquatica*) marshes, and here many remain until early October, at which date their less tardy comrades have already reached the island of Jamaica. From Dr. Merriam's report* we learn that our bird, now a Ricebird, appears in the rice fields of South Carolina and Georgia from August 15 to 21, and here, apparently content with their surroundings, they remain for several weeks without making further advance. In Cuba Gundlach† records their arrival in September in immense flocks, which remain only for a short time and then continue their journey southward.

Now appears an interesting question concerning their further line of flight. Three routes are open to them; (1) they may go to the westward, following the Cuban coast, thence, crossing to Cozumel and Yucatan, pursue their migration along the Central American coast to Panama, etc.; (2) they may go to the eastward through Hayti, San Domingo, and Porto Rico, and thence southward through the Windward Islands; or (3) they may strike out boldly and take the more direct course, crossing the sea to Jamaica and then in one extended flight reach the mainland of northern South America. An examination of the published records of the bird's occurrence shows that all three routes are followed to a greater or less extent, but it is apparent that comparatively few birds go as far east as the Windward Chain, while perhaps as many go through Jamaica as pass down the Central American coast. The records, however, from the last-named region are too brief to permit of satisfactory conclusions being drawn from them, and I merely present them as they stand. From Cozumel the Bobolink is recorded by Salvin,‡ who also states§ that many examples were taken by Gaumer in Yucatan and on the islands off the east coast of Honduras. From Hon-

* Dept. of Agriculture, 1886. Report of the Ornithologist and Mammalogist, pp. 248-249.

† Journal für Ornithologie, 1874, p. 129.

‡ Ibis, 1885, p. 191.

§ Biologia Centrali-Americana, Aves, p. 448.

duras we also have another record by the same author,* to which I will refer later, and we find the species included by Zeledon† in his list of the birds of Costa Rica. Swainson's‡ record from the highlands of Mexico, which probably refers to the western race, *D. o. albinucha*, completes the Mexican and Central American records with which I am familiar.

Turning now to the second route, leading through the Windward Islands, we find that from Hayti, San Domingo, or Porto Rico we have as yet no notice of the bird's appearance. Our first record, therefore, is from the small island of Sombrero in the Virgin group, where Lawrence§ records it, and in the Catalogue of the British Museum‖ a specimen is cited from Nevis; both records are without data, but there is a specimen in the American Museum labelled, "Sombrero, Sep. 17, 1862, Julien," on which the first was probably based. From Guadeloupe and Martinique the bird is given by L'Herminier,¶ and this completes the Windward Island records until we come to the last of the chain, Grenada. From this island we have some very welcome and valuable information by Wells,** who during three years' observations had met with the species on only one occasion, when he captured one from a flock of five birds. Reference to this specimen in the American Museum collection shows it to have been taken October 1, 1885.

Passing now to a consideration of the data from the third, or last route mentioned, we find that great numbers of birds select this more direct line of migration. After leaving the island of Cuba the birds' first resting place would be the Caymans, distant about one hundred and seventy-five miles. Mr. Cory writes me that his record of their occurrence on Little Cayman†† is based on two specimens, a male taken April 29, and a female taken April 30, and while it is probable that they also visit these islands in the fall, we may presume that the greater numbers follow the Cuban coast to at least Cape Cruz, or to a point directly north of

* Ibis, 1866, p. 194.
† Proc. U. S. Nat. Mus., VIII, 1885, p. 107.
‡ Phil. Mag., New Ser., I, p. 435.
§ Ann. N. Y. Lyc., 1864, p. 99.
‖ Cat. Brit. Mus., XI, p. 332.
¶ *Cf.* Lawrence, Proc. U. S. Nat. Mus., I, 1878, p. 450.
** Ibid., IX, 1886, p. 616.
†† Auk, VI, 1889, p. 31.

Jamaica, distant now only eighty miles, nearer indeed than are the Caymans from this island.

The Jamaican records are, in comparison to many of those already cited, detailed and exceedingly satisfactory; Gosse* reports the arrival in October of vast numbers of Bobolinks which remain until early November. They feed on the seeds of the 'guinea grass,' are called 'Butter-birds,' and their flesh is highly esteemed. March's† notes coincide with those of Gosse, but he says the birds remain only for a few days. There is a specimen in the American Museum taken by this collector labelled "Spanish Town, ♂ Sep. 25, 1865." A further Jamaican record of a female taken in October, is given by Sclater.‡

After leaving Jamaica the route, considered as a regular highway of migration, is perhaps the most interesting and remarkable of any chosen by our migratory land birds, for at no other time during their entire journey from north to south, or *vice versa*, are they necessarily so far from land, unless driven from their course by storms or adverse winds. The South American coast is now distant four hundred miles, the way unmarked by islet, shoal, or reef. This is to the south; to the southwest, leading to the Costa Rican coast, are two or three small reefs or islands which may tempt some of our birds to follow this course while others take the more direct route to South America. Nor can we doubt their ability to perform without resting this more extended flight, for Darwin§ found a Bobolink in the Galapagoes, distant nearly six hundred miles from the nearest mainland. Further, the records from northern South America apparently indicate that some birds appear directly upon the coast instead of entering this country by way of Panama or Trinidad. Commencing at the westward these records are as follows: In the British Museum Catalogue‖ specimens are cited from Chepo and Paraiso on Panama; Sclater¶ mentions a specimen from Sta. Martha, and referring again to the British Museum Catalogue, we find specimens mentioned from Caracas and Cayenne. Salvin**

* Birds of Jamaica, 1847, p. 229.
† Proc. Phil. Acad. Sc., 1863, p. 299.
‡ P. Z. S., 1861, p. 74.
§ Voyage of the Beagle, 1841, Vol. III, p. 106.
‖ Cat. Brit. Mus., XI, p. 332.
¶ Cat. Am. Birds, 1862, p. 134.
** Ibis, 1885, p. 218.

gives the bird from British Guiana and this, with the Cayenne record, seems to form the eastern limit of its range, there being, as far as I know, no records for eastern Brazil or the lower Amazon, while Darwin's record, already referred to, of a specimen taken in October, 1835, on James Island in the Galapagoes, is the only one with which I am familiar from west of the Andes. Indeed our bird's further wanderings seem now to be largely confined to the eastern slope of this range of mountains and the head waters of the Amazon, until it reaches what may be its true winter quarters in southern or southwestern Brazil. Proceeding with our records, we find a specimen mentioned by Sclater* from Merida, about forty miles from the coast in Venezuela; there is a specimen in the British Museum† from Bogota, and Sclater and Salvin‡ mention its occurrence at Antioquia. Sclater§ also gives it from the Rio Napo, and there are two specimens from this locality in the American Museum collection, both adult males in spring plumage. Cassin‖ cites a specimen from the Rio Negro, and in the British Museum Catalogue a specimen is mentioned from the Rio Javari in eastern Ecuador. All these records are absolutely without data and we may therefore welcome an exceedingly important and interesting note by Berlepsch,¶ who records the capture by Garlepp, of an adult male in fresh and unworn plumage, at Tonantins on the upper Amazon, on May 6, 1884, and also, in the same locality, of a second specimen in female plumage but without a label. From Paucotambo, in southern Peru, we have a record by Sclater,** and the same author, in his Catalogue,†† mentions a specimen from Bolivia. In the American Museum there is an adult male, taken March 1, 1886, by Smith at Corumba Matto Grasso, while Natterer‡‡ observed it in the same Province in November. This collector also found it on the Madeira in November; at Maribitanas noted a single one on April 4, and on the 13th saw a great flock of these birds in black plumage.

* P. Z. S., 1870, p. 781.
† Cat. Brit. Mus., XI, p. 332.
‡ P.Z.S., 1879, p. 509.
§ Ibid., 1858, p. 72.
‖ Proc. Phil. Acad. Sc., 1866, p. 16.
¶ Journal für Ornithologie, 1889, p. 99.
** P.Z.S., 1876, p. 16.
†† Cat. Birds, 1862, p. 134.
‡‡ *Cf.* Pelzeln, Orn. Brazil, iii, p. 199.

Cassin's* mention of a specimen taken by Page on the La Plata, marks the southern limit of our bird's distribution and concludes the South American records with which I am acquainted. On the return migration we have comparatively few data to assist us; those relating to South America, which I have already presented, apparently indicate that the journey is commenced early in April, but that some individuals linger until May, and on the 20th of that month Salvin, as before mentioned, found a pair on the coast of Honduras. Gosse† says they return to Jamaica in April, but stay only a short time, and this record renders it probable that the line of flight chosen in the fall is simply retraced in the spring. Gundlach‡ reports their arrival in Cuba in May, and says they remain only a few days, just how many is not stated, but he elsewhere says§ they are present when the last of the "Sylvicolidæ" depart.

We might now suppose that the southern coast of Florida would prove the sole entering port to the eastern United States; probably the larger number of birds do choose this route, but others pass northwards through the Bahamas, where they are true transients, scarcely pausing to rest in their journey. In the American Museum there is a male, collected on Andros Island by C. J. Maynard, April 25, and labelled by this collector as the "first of the migration." At Nassau on New Providence, Bryant‖ first notes their appearance May 6, when he saw a number of flocks flying to the westward, and on May 7 the country was filled with them, all being males. Numerous flocks continued to arrive May 8; on the 9th many females were killed; on the 10th only a few were observed, and May 11, they had entirely disappeared.

It now only remains to call attention to the bird's stay in localities far south of their southern breeding limits where, tempted by an abundance of food, they linger to an unusually late date. At Gainesville, Florida,¶ I found both sexes in great numbers, feeding in the oat-fields as late as May 25, and we are familiar with

---

* Proc. Phil. Acad. Sc., 1866, p. 16.
† Birds Jamaica, 1847, p. 229.
‡ Journal für Ornithologie, 1874, p. 129.
§ Ibid., 1872, p. 419.
‖ Proc. Bost. Soc., VII, 1859, p. 119.
¶ Auk, V, 1888, p. 272.

Dr. Merriam's* records from the rice fields of South Carolina and Georgia, which the birds frequent until May 29, a date at which we generally consider the migration to be nearly completed and when their earlier comrades are already well established in their summer housekeeping.

OBSERVATIONS ON THE AVIFAUNA OF PORTIONS OF ARIZONA.

BY EDGAR A. MEARNS, M. D.

THESE observations are confined to the alpine regions of Arizona, which I explored during a residence of over four years in the Territory.

The mountain system of Arizona is a continuation of both the Rocky Mountain chain and the Sierra Nevada. In 43° 30′, north latitude, the Wind River range of the Rocky Mountains divides about the remote sources of the Great Colorado River. One branch trends southward, and passing around the sources of the Platte, the Arkansas, and the Rio Grande, is merged in the Guadaloupe Mountains, and at last loses itself in the great prairie plains of the southwest. The other branch, turning to the west and south forms the Wasatch range, the eastern rim of the Utah Basin, and, widening out to the level of the great plateau, reaches the cañon of the Colorado, near 112° of longitude.

A branch of the Sierra Nevada deflects from that range east of Owens River, and, with a general trend to the southeast, passes by the head of the Virgin River, becomes merged in the plateau, and unites with the Wasatch at the Grand Cañon of the Colorado. These united ranges form the mountain system of Arizona, and south of the Colorado River break up into parallel ridges, isolated groups, detached spurs and peaks, which are again united in one massive chain in the Mother of Mountains in northern Mexico.

The San Francisco peak, volcanic in its origin, may be considered the apex of the Arizona mountain plateau, and the

*Dept. of Agriculture, 1886. Report of the Ornithologist and Mammalogist, pp. 248-249.

northern limit of the numerous ranges extending from the 35th parallel to the Sonora line, and from the 109th to the 113th degree of longitude. Grouped around it are numerous lesser peaks, mostly volcanic also, highest of which is Mt. Kendricks, having an altitude of about 10,200 feet.

From the San Francisco Mountains, a ridge extends southeast which separates the waters of the Little Colorado from those of the Gila. This is known as the Mogollon Range, while its southeastern spurs are known as the White Mountains. These ranges are well wooded, containing some of the finest timber to be found in the Territory. They are also fairly well watered by streams and springs, are adorned with many beautiful parks and elevated valleys, and covered with rich grasses and herbage.

West of the Mogollon, and running parallel with that range, is the Sierra Mazatzal. Its course is east of the Verde River, and south to Salt River. Its slopes and summit are covered with an abundance of pine, juniper, and oak; water is found in several streams and springs, and its valleys and foot-hills are covered with a fine growth of grasses and vegetation.

Between the Mazatzal and Mogollon are several detached spurs and short ranges. The largest of these—the Sierra Ancha, situated in what is known as Tonto Basin—is a flat-topped mountain, some thirty miles in length, covered with one of the largest and finest bodies of pine timber in Arizona.

Between the Salt and Gila Rivers are many mountain groups, some of which attain a considerable elevation. The most prominent are the Superstition Range, which rears its lofty and rugged front east of the great plains, stretching between the Salt and the Gila; the Pinal Range, which runs nearly parallel with the Gila, and whose northern slopes are heavily timbered; the Salt River and Apache Mountains, south of Salt River; the Gila Range, Sierra Natantes, and the Sierra de la Petahaya. Nearly all of these offshoots from the main ranges are well watered and timbered.

The vast region west of the Verde River, and extending from the Great Colorado to the Gila, is crossed by numerous mountain ranges. Running parallel with the former stream, and west of it, are the Verde Mountains. The northern end of this ridge is called the Black Hills, and is a massive elevation, covered with a heavy growth of timber. The northern slope of the Black Hills is

washed by the Verde, and running north of that stream is a range of hills that culminates in the Bill Williams Mountain, a prominent peak west of the San Francisco cone. The next range to the west of the Verde Mountains is the Bradshaw and the Sierra Prieta. This is one of the most magnificent mountain chains in Arizona. It may be said to begin at Granite Peak, ten miles north of Prescott and extends in a southeasterly direction to the wide plains which stretch along Salt River near its junction with the Gila, being about fifty miles in length by about twenty in average width, and clothed with fine pines, junipers and cedars. North of the Sierra Prieta, and thence to the Colorado Cañon, are numerous ranges, culminating in high, heavily timbered ridges, forming a considerable forest area to the south of the Colorado River.

The above enumeration, including all of the high ranges of mountains that lie between the Gila and Colorado Rivers in Arizona, defines the geographical limits under consideration. In ascending these mountain slopes, from the lower plateaus or mésas, the vegetation is seen to change in character with the altitude, giving rise to a remarkable succession of vegetable zones, following each other with more or less precision. When the forest region is attained, the western cedars (*Juniperus occidentalis* var. *monosperma* and *J. Californica*) and piñon or nut pine (*Pinus monophylla*) are the first trees encountered; then a zone of evergreen-oaks (*Quercus oblongifolia*, *Q. chrysolepis*, *Q. hypoleuca*, etc.), succeeded by belts of rough-barked juniper (*J. pachyphlœa*), deciduous oaks (*Quercus Gambelli*, etc.), pine (*P. ponderosa*), aspen (*Populus tremuloides*), firs (*Pseudotsuga taxifolia* and *Abies concolor*), and spruce (*Picea Engelmanni*), in the order named. The belt of yellow or bull pine (*P. ponderosa*), which constitutes the bulk of the forested areas of Arizona, is usually reached at an altitude of 5000 to 6000 feet above the level of the sea. Its lower limit coincides with the scope of this paper, which deals with the birds residing during the summer months within, or above, the zone of pine timber.*

As it is my object to emphasize the peculiar ornithological features stamped upon these elevated localities, those species which

**Pinus ponderosa* is the species referred to, when speaking of the pine belt. Several other species occur sparingly, among them *Pinus flexilis* and *P. reflexa* (white pines) at high altitudes, *P. Chihuahuana* interdigitating with the yellow pine along its lower margin, and *P. Murrayana* (black pine) forming considerable forests near the Colorado River.

barely reach the pine forests and are much more characteristic of the lower mésas and valleys are excluded,* although not a few of them breed occasionally among the oaks and pines at the lower border of this territory. These, together with the winter visitors and migrants passing through during spring and fall, would perhaps treble the number of species here given.

The summer residents of the mountain forests of northeastern Arizona comprise two marked classes; one representing a southern extension of the avifauna of the Rocky Mountains; the other a northern extension of the avifauna of the mountains of northern Mexico, along the Mogollon range. Those not included in either of these classes are mainly inhabitants of the surrounding regions, whose distribution is general. A few species, like the Californian Woodpecker (*Melanerpes formicivorus bairdi*), extend their habitat to this region from the west; while others, such as the Massena Partridge (*Cyrtonyx montezumæ*), reach it from the east or southeast; and a few appear to be mainly or wholly confined to this particular region during their season of reproduction, among them the Red-backed Junco (*Junco cinereus dorsalis*).

The following species are common to the Rocky Mountain region:—

Colymbus nigricollis californicus, *Merganser americanus*, *Anas boschas*, *Anas strepera*, *Anas americana*, *Anas discors*, *Spatula clypeata*, *Dafila acuta*, *Erismatura rubida*, *Porzana carolina*, *Dendragapus obscurus*, *Aquila chrysaëtos*, *Haliæetus leucocephalus*, *Nyctale acadica*, *Bubo virginianus subarcticus*, *Glaucidium gnoma*, *Dryobates villosus hyloscopus*, *Dryobates pubescens oreœcus*, *Picoides americanus dorsalis*, *Sphyrapicus thyroideus*, *Melanerpes torquatus*, *Colaptes cafer*, *Chordeiles virginianus henryi*, *Trochilus platycercus*, *Contopus*

*To be included in this category are the following species, all of which breed, at least occasionally, in the lower edge of the pine belt:—

Ardea virescens, Callipepla gambeli, Urubitinga anthracina, Pandion haliaetus carolinensis, Geococcyx californianus, Dryobates scalaris bairdi, Trochilus rufus, Sayornis saya, Aphelocoma woodhousei, A. sieberii arizonæ, Carpodacus mexicanus frontalis, Spizella atrigularis, Peucæa ruficeps boucardi, Pipilo maculatus megalonyx, Petrochelidon lunifrons, Stelgidopteryx serripennis, Lanius ludovicianus excubitorides, Helminthophila luciæ, Dendroica æstiva sonorana, Dendroica nigrescens, Geothlypis macgillivrayi, Geothlypis trichas occidentalis, Icteria virens longicauda, Sylvania pusilla pileolata, Mimus polyglottos, Catherpes mexicanus punctulatus, Thryothorus bewickii bairdi, Parus inornatus griseus, Parus wollweberi, Psaltriparus plumbeus, Polioptila cærulea.

borealis, *Contopus richardsonii*, *Empidonax difficilis*, *Cyanocitta stelleri macrolopha*, *Perisoreus canadensis capitalis*, *Corvus americanus*, *Picicorvus columbianus*, *Cyanocephalus cyanocephalus*, *Xanthocephalus xanthocephalus*, *Sturnella magna neglecta*, *Scolecophagus cyanocephalus*, *Coccothraustes vespertina*, *Carpodacus cassini*, *Leucosticte australis*, *Spinus pinus*, *Spinus psaltria*, *Poocætes gramineus confinis*, *Zonotrichia leucophrys*, *Spizella socialis arizonæ*, *Pipilo chlorurus*, *Habia melanocephala*, *Piranga ludoviciana*, *Progne subis*, *Tachycineta thalassina*, *Vireo gilvus swainsoni*, *Vireo solitarius plumbeus*, *Dendroica auduboni*, *Salpinctes obsoletus*, *Troglodytes aëdon aztecus*, *Certhia familiaris montana*, *Sitta carolinensis aculeata*, *Sitta canadensis*, *Sitta pygmæa*, *Parus gambeli*, *Regulus calendula*, *Turdus aonalaschkæ auduboni*, *Merula migratoria propinqua*, *Sialia arctica*.

In connection with this group of Rocky Mountain birds it should be remarked that the alpine mammals of these parts of Arizona afford an even more striking illustration of the southern extension of the Rocky Mountain fauna, as they are chiefly* sedentary species, occupying these peaks and elevated ridges throughout the year. The mammalian family Sciuridæ furnishes an interesting example: several Rocky Mountain forms — *Sciurus aberti*, *S. hudsonius mogollonensis*,† *Tamias asiaticus quadrivittatus* and *T. lateralis*—have their range in this region restricted to the high mountain-tops, where they are exceedingly plentiful. These highest points would appear, upon a map representing the geographical distribution of these species, as a chain of small islands in a sea having a widely different faunal character.

The flora of this region, which has been recently investigated, affords an exactly parallel case, these mountains appearing like islands in a region of more southern floral aspect.

The following species of mountain birds extend their habitat from northern Mexico into the mountains of this region: — *Meleagris gallopavo mexicana*, *Myiarchus lawrencei olivascens*, *Loxia curvirostra stricklandi*, *Piranga hepatica*, *Dendroica oliva-*

* Several of the larger animals, as the antelope, deer, and bears, descend to the lower valleys and mésas during the severest winter weather.

† A form of the red squirrel, intermediate between the common eastern chickaree and var. *fremonti* of the southern Rocky Mountain region.

cea, *Dendroica graciæ*, *Setophaga picta*, *Cardellina rubrifrons*.

As restricted, the summer avifauna of this mountain region comprises, according to my observations, a hundred species.* This number will doubtless be considerably augmented upon thorough exploration.

Colymbus nigricollis californicus. AMERICAN EARED GREBE. — This handsome Grebe is very numerous on Stoneman's and the Mormon Lakes, where great numbers of them breed, as they also do at a small lake near Flagstaff. Their nests bear so close a resemblance to small floating masses of mud and herbage that they are difficult to discover, for which reason I overlooked them for some time. The eggs are covered, and the parents seldom go near them, at least during the daytime. On Stoneman's Lake they were so abundant that a couple of dozen were shot in an evening, three being killed at one shot. I caught one diving bird, as it came to the surface close beside my boat, but released it after obtaining its photograph.

Merganser americanus. AMERICAN MERGANSER.—I found this bird breeding in various mountain streams which pay tribute to the Verde and and Salt Rivers. It also breeds on the upper courses of both of these rivers, nestlings having been procured as low as the vicinity of Fort Verde, on the Verde River.

Anas boschas. MALLARD.— This was found commonly on several lakes and streams in the Mogollons, during the months of May and June; and I think they were breeding, although I did not secure nestlings or eggs.

Anas strepera. GADWALL.— This species was common on the mountains, where there was water in sufficient quantity, and was probably breeding, although we failed to discover its nest.

Anas americana. BALDPATE.—A number of Baldpates were shot by my party at Mormon Lake during the latter part of May, 1887, at which time they were doubtless breeding. This lake is a shallow body of water, about fifteen miles in circumference, occupying a basin in the Mogollon Mountains, some forty miles southeast of the San Francisco peak. It is of variable size and depth, depending upon the rainfall, and was then so grown up with tulé, cat-tail, and other aquatic vegetation, that it resembled an immense field or marsh. As our only boat was a hollow log, so heavy that progress was both slow and laborious, our examination of this lake was far from being either complete or satisfactory. I felt sure that these Ducks were breeding there, although we could not find their nests. A male, shot on the 28th of May, was bleached to a pale drab color, with the markings much obscured, the green on sides of head not being apparent at all. Its quills were so worn and abraded that it certainly

* Probably several of these species do not breed in Arizona, their breeding having been inferred from their presence there in summer. The facts are so stated in all such cases.

could not have flown to any other body of water, as it was barely able to rise from the surface when closely pressed.

Anas discors. BLUE-WINGED TEAL.— Several were seen on each of the mountain lakes that we visited, but no positive proof of their breeding there was obtained, although it is probable that they do.

Anas cyanoptera. CINNAMON TEAL.— This remarkably handsome Duck was found breeding abundantly on the small lakes of the Mogollon Mountains during May and June.

Spatula clypeata. SHOVELLER.— Very abundant in the lakes of the Mogollons during May and June. They were probably breeding, although I obtained no other proof of it than their presence there in numbers at that season.

Dafila acuta. PINTAIL.— We learned from persons living near the Mormon Lake, that several kinds of Ducks breed in such considerable numbers on the lake that the Mormon settlers make a practice of gathering their eggs. The best season is during the latter part of May, and we were informed that an egg hunt had taken place about a week before our arrival, which perhaps accounts for our lack of success as eggers, they having gone over the same ground that we did. Although several species of Ducks, including the present one, were abundant, we found no eggs save those of the Teal.

Erismatura rubida. RUDDY DUCK.— A number of these beautiful Ducks were shot on Stoneman's Lake, at an altitude of 6200 feet, late in the month of May. They had acquired their full nuptial plumage, and undoubtedly would soon have been nesting, as a female taken contained an egg of considerable size. On Mormon Lake, also, a few were shot about the first of June; and we met with it again at Duck Lake, near Flagstaff, later in the season.

Plegadis guarauna. WHITE-FACED GLOSSY IBIS. — On the last day of May, 1887, we rode entirely around the Mormon Lake, exploring the edge as far as possible. Large flocks of these Ibises were found, and they were probably on their breeding ground. A wounded one was carried along by a member of the party, but it died, presumably of cold, on San Francisco Mountain.

Botaurus lentiginosus. AMERICAN BITTERN.— Breeds commonly in suitable places throughout these mountains. It was especially abundant at Mormon Lake, where it finds a most congenial home.

Nycticorax nycticorax nævius. BLACK-CROWNED NIGHT HERON. — Several were shot at Mormon Lake during the last days of May. There are several rookeries of this species in the cañons of the upper Verde and its tributaries. It is a permanent resident in the Verde Valley.

Grus mexicana. SANDHILL CRANE.— A few pairs breed at Mormon Lake, where a Mormon settler took its eggs in 1886.

Porzana carolina. SORA.— The Soras were abundant and very tame at the time of our visit to Mormon Lake. They were also found in several of the smaller lakes, and probably bred at Stoneman's Lake, where I took a pair on May 24.

Fulica americana. AMERICAN COOT.— Breeds abundantly in every reedy pool, at all altitudes. Several floating nests were found, but most of them were strongly moored to the reeds. At Mormon Lake a number of interesting nests were seen, which were protected from the fierce sun by a thatch of broken cat-tails. The dusky younglings, with their bright bills and orange-ornamented down, were seen in great numbers, in all stages of growth, during the months of May and June, playing at hide-and-seek amongst the rushes.

Actitis macularia. SPOTTED SANDPIPER.— These birds were apparently breeding at a small lake, in a crater-like depression at the summit of a volcanic peak arising near the western base of the San Francisco cone, the lake being at an altitude of from 10,000 to 10,500 feet. Near Baker's Butte, in the Mogollon range, I saw a young of the year, on the 28th of August, at the altitude of about 8,000 feet. It was in a thickly wooded place, where the only water was a little rill resulting from a recent rain storm. This bird also breeds in the low valleys of Arizona.

Ægialitis vociferus. KILLDEER.— Breeds in moist places up to 7000 feet. I cannot recall having seen it above that level.

Cyrtonyx montezumæ. MASSENA PARTRIDGE.— Rather scarce in most portions of Arizona. Its habit of squatting motionless upon the ground whenever an enemy approaches, renders it an easy prey to raptorial birds and other predacious animals, and this possibly accounts for its scarcity. It ranges downward into the foot-hills in winter; but in summer I have found it along the crest of the Mogollon ridge at various points. I have also known it to breed just below the pine belt, its lower range, therefore, slightly overlapping that of Gambel's Partridge. I did not meet with it on San Francisco Mountain, but its comparative scarcity and peculiar habits may have caused it to be overlooked

Dendragapus obscurus. DUSKY GROUSE.— In the White Mountains of eastern Arizona, this Grouse is abundant. I searched for it in vain elsewhere. I fully expected to find it common on the San Francisco peaks. Our party ransacked them quite thoroughly, however, without discovering it, and we were told by the people who live there that none have been found. I learned from the Indians that there is another species of Grouse in the White Mountains, which I have not seen.

Meleagris gallopavo mexicana. MEXICAN TURKEY.—The Turkey breeds throughout these mountains. On the west side of San Francisco Mountain I found it nearly up to the timber line, and was informed by two shepherds who herded their sheep on the mountain that it occasionally even crosses the highest notches between these peaks, and so reaches the deep valley which they enfold upon the eastern side. It may be found at watering places in large flocks.

Columba fasciata. BAND-TAILED PIGEON. — A common resident of the pine forests of Arizona. It feeds largely on acorns and hence spends much time in the lower border of the pine zone, where oaks are numerous. While encamped on the Mogollon Mountains during the months of July and August, 1887, I observed that large numbers of Band-tailed Pigeons

roosted on the mountain at night, returning to their feeding ground amongst the oaks of Tonto Basin, about 2000 feet below, in the morning; late in the day they again resorted to the pine trees on the mountain. I did not find its nest in the pines, but procured both young and eggs in the cypress brakes on the mountain sides near the Natural Bridge on Pine Creek, in Tonto Basin, somewhat below the pine forests. It was quite common in the highest Mogollons and around the base of the San Francisco cone in May and June, at which season it spent much time in aspen groves.

Zenaidura macroura. MOURNING DOVE. — This Dove breeds, but is not generally common in the mountains. It was occasionally seen in open valleys at high levels. In an open space where I camped, on the base of the San Francisco cone, they were so numerous that one of the soldiers with me shot enough for a pot-pie for the whole party. The altitude of this camp was not far from 11,000 feet.

Cathartes aura. TURKEY VULTURE. — Seen soaring around the San Francisco peaks, and the highest backbone of the Mogollon range; but it generally breeds below the pine timber, often selecting caves for the purpose.

Accipiter velox. SHARP-SHINNED HAWK. — Occasionally seen in the mountains at all seasons.

Accipiter cooperi. COOPER'S HAWK. — Although resident through the pine belt, this Hawk is more common in the lower country, breeding abundantly in the wooded cañons of the foot-hills.

Accipiter atricapillus striatulus. WESTERN GOSHAWK. — An immature specimen, perhaps young of the year, started from an aspen thicket, not far from the timber line on San Francisco Mountain, June 7, 1887. An adult was seen, June 3, about five miles from the base of the mountain, in the pine woods. Another adult was seen in the upper edge of the cedar forest, below Stoneman's Lake, on May 21. All were too shy to be shot.

Buteo borealis calurus. WESTERN RED-TAIL. — Breeds commonly throughout the belt of pine timber, as well as on the lower mésas and in the deep valleys and cañons of Arizona.

Aquila chrysaëtos. GOLDEN EAGLE. — A young one, recently taken from a nest in a pine-tree in the great San Francisco forest, was seen in confinement by our party. We frequently saw a pair of these Eagles about the San Francisco peaks, in June. They were sometimes seen flying over the highest peaks. I once saw one fly towards a Clarke's Crow that sat on a dead tree. The Nutcracker made more clatter and outcry than a Flicker chased by a Hawk.

Haliæetus leucocephalus. BALD EAGLE. — A pair of these birds has bred for many years past in a pine-tree near Stoneman's Lake, altitude 6300 feet. Possibly this represents the extreme southwestern limit of its known breeding range.

Falco mexicanus. PRAIRIE FALCON. — On the 4th of June, 1887, the windiest day I ever experienced, I succeeded with a companion in reaching the summit of Humphrey's Peak — the highest land in Arizona* —

*Altitude 12,562 feet (Wheeler).

and crawled up behind the monument built by Lieutenant Wheeler's party. We looked down upon the remaining half-dozen cones, joined by a ridge of horseshoe form, which constitute the San Francisco group, and into the cratered peaks arising from the surrounding plain, while snow-like masses of clouds rushed past us, and the pile of rocks behind which we were cowering vibrated in a gale so fierce that large pieces of volcanic scoria, thrown into the air, were swept along over the brink of a precipice in front of us. The only living things in sight, besides some mountain sheep, were two birds, in point of size inclining to extremes of the ornithological scale, — a Prairie Falcon and a Broad-tailed Hummingbird, which latter sought momentary shelter with ourselves. These, only, braved the wind and cold at the summit. The name of 'Prairie' Falcon scarce accords with my recollection of that scene.

On another occasion I climbed to the top of Agassiz Peak, which rises far above the timber line, being second only to Humphrey's Peak, and enjoyed a striking contrast of conditions. A calmer day one rarely sees, and I was glad to observe the birds that haunted this interesting spot of earth. A pair of Golden Eagles occasionally came into view; the glistening forms of Violet-green Swallows described endless figures and geometric designs; White-throated Swifts darted in and out amid the jagged rocks of the awful chasm enfolded by these peaks; and the vibrating notes of Rock Wrens drew my attention to a pair that climbed sturdily over rough piles of colored lavas. No other birds were seen; and the only mammal, save the mountain sheep, was a large spermophile (*Spermophilus grammurus*) whose sounding whistle proclaimed his presence far and near. Butterflies were very numerous; and bees and flies made bold to share my meagre lunch.

Falco peregrinus anatum. DUCK HAWK. — Resident at all altitudes, breeding on cliffs both in the mountains and in the low valleys of Arizona. It breeds regularly on the cliffs about Fort Verde, at the altitude of 3400 feet; and a specimen shot at the city of Tucson, May 7, 1885, was perhaps breeding in the neighboring Santa Catalina Mountains.

Falco sparverius. AMERICAN SPARROW HAWK. — Breeds very commonly throughout these mountains, as well as in the low districts of Arizona. At Forest Dale, near Fort Apache, I saw an interesting albinistic specimen having the entire body creamy white, except the rufous pattern of the back and tail, which was nearly of normal color.

Nyctale acadica. SAW-WHET OWL. — This Owl was heard regularly around the San Francisco Mountain where, near the north spring, I saw one sitting on a tall pine stump, ogling me from a deserted Flicker's burrow. It proved to be the female parent of three young and an egg, which form a series exhibiting the different stages of growth from the egg to a nearly full-fledged nestling.

Bubo virginianus subarcticus. WESTERN HORNED OWL. — Breeds commonly throughout Arizona; rather abundant in the timbered areas.

Glaucidium gnoma. PYGMY OWL. — Breeds regularly on these mountains. It is more apt to be discovered by its spiteful little enemies, the

Pygmy Nuthatches, than by ornithologists; and I am indebted to these little birds for most of my specimens. I took a female at Whipple Barracks, March 21, 1884; an old male was taken from an oak-tree on Pine Creek, in Tonto Basin, March 29, 1886; another captured at Banghart's Station, in Chino Valley, while surrounded by belligerent Plain Titmice, in a cottonwood hedge, on November 5, 1884; and one was killed at Baker's Butte, on the Mogollon Mountains, July 26, 1887. Its pleasant note was heard in the pine-trees overhead nearly every night while I was exploring the San Francisco group of mountains.

(*To be continued.*)

ADDENDUM TO 'A LIST OF THE BIRDS OF THE HUDSON HIGHLANDS, WITH ANNOTATIONS.'*

BY DR. EDGAR A. MEARNS.

[204. 1.] **Phalacrocorax dilophus** (Sw. and Rich.). DOUBLE-CRESTED CORMORANT.—An adult specimen taken at Cornwall, on the Hudson, October 10, 1883; others seen on the upper Hudson November 4, 1889. Measurements (No. 2627, Cornwall-on-Hudson, October 10, 1883, E. A. M.): length, 33.60; alar expanse, 53.65; wing, 12.90; tail, 7.80; culmen, 2.30; gape, 3.60; tarsus, 2.40; middle toe and claw, 3.20; middle claw, .47; outer toe and claw, 3.90; outer claw, .38; inner toe and claw, 2.33; inner claw, .47; hallux with its claw, 1.57; claw of hallux, .50 inch. Irides green. Feet and claws jet black. Gular pouch orange.

[52.1.] **Piranga rubra** (Linn.). SUMMER TANAGER.—I took a female in perfect plumage, at Highland Falls, New York, May 12, 1883. Measurements (No. 2583, E. A. M.): length, 7.00; alar expanse, 11.40; wing, 3.60; tail, 2.80; culmen, .60; gape, .77; tarsus, 74; middle toe and claw, .75; claw alone, .22 inch. Irides hazel. Bill greenish olive. Legs and feet bluish gray; claws brownish.

[52.2.] **Piranga ludoviciana** (Wils.). LOUISIANA TANAGER.— On December 21, 1881, while standing on a high point beside the Hudson, at Fort Montgomery, New York, I noticed a bird flying strongly from the north. It alighted in a tree top near me, and appeared animated and shy; thinking it was about to fly away, I shot it at once, and it proved to be a young male Louisiana Tanager, in good plumage, and fairly well nourished†. Measurements (No. 2244, E. A. M.): length, 7.45; alar expanse,

*Published in Bulletin of Essex Institute, Vols. X to XIII, 1878 to 1881.

†For its only previous capture east of the Mississippi River, see 'Forest and Stream,' Vol. X, p. 95.

11.35; wing, 3.62; tail, 3.00; culmen, .65; bill from nostril, .48; gape, .75; tarsus, .82; middle toe and claw, .80; middle toe without claw, .58; middle claw, .25 inch. Iris hazel. Bill with maxilla dusky brown, yellowish on edges, mandible yellow. Tarsi and toes bluish lead color. This bird was in the plumage of the female, but careful dissection proved that it was a young male.

[17.1.] **Cistothorus stellaris** (Licht.). SHORT-BILLED MARSH WREN.—A summer resident; not rare at Cornwall, on the Hudson, where its nests and eggs were taken by Mr. Eltinge Roe, in June, 1882, as recorded in the Bulletin of the Nuttall Ornithological Club, Vol. VIII, p. 179.

79. **Ammodramus caudacutus nelsoni** Allen. NELSON'S SPARROW.—The Sharp-tailed Sparrows recorded by me from the Hudson Highlands have recently been referred by Mr. Jonathan Dwight, Jr., to this form, although he considers them to be intermediate between subspecies *nelsoni* and *subvirgatus*, approaching a little more closely to *nelsoni*.

NOTE ON THE NESTING OF *BUTEO BRACHYURUS* AT ST. MARKS, FLORIDA.

BY C. J. PENNOCK.

EARLY in April, 1889, while on a collecting trip at St. Marks, Florida, I spent several days in the swamps that line the Gulf coast.

April 3, I noticed a small black Hawk fly to a nest in a pine tree about three miles back from the coast. On climbing to the nest I found the tree had formerly been occupied by Herons, there being three old nests besides the one occupied by the Hawk, which also I took for an old Heron's nest. It had evidently been added to recently, and contained two or three fresh twigs of green cypress on the bottom. At this time there were no eggs. I again visited the nest April 8. The old bird was seen near, and this time she showed some concern, flying around us above the tree tops as we approached, and several times uttering a cry somewhat resembling the scream of the Red-shouldered Hawk, but finer and not so prolonged. The nest had received further additions of cypress twigs, but was still empty. My boatman wrote me May 2, stating that after three visits he had shot the bird on the nest

and taken one egg. He skinned her, but found no more eggs. I shortly received both the skin and egg and sent the former to the Ornithologist of the U. S. Department of Agriculture for positive identification. It is the form heretofore known as *Buteo fuliginosus*, now believed to be merely a dark color phase of *B. brachyurus* (see W. E. D. Scott, Auk, VI, July, 1889, 243-244).

The egg is dull white, showing blue when held against strong light. It is spotted on the larger end with reddish brown, in small spots and blotches, over about one fourth of the surface. A few finer spots extend to the middle of the smaller end where, however, they can hardly be seen unless closely examined. The egg measures 55×41 mm.

Until recently this tropical species was regarded as a rare if not accidental visitor in Florida. The first positive record of its breeding in the United States appeared in the last number of 'The Auk,' where Mr. W. E. D. Scott states that he found a pair building at Tarpon Springs. The present record is of special interest inasmuch as it not only increases the probability that the species breeds regularly along the Gulf Coast of Florida, but carries its range northward to St. Marks, which is in western Florida, north of the Gulf. It would not be surprising if future field work showed the breeding range of this species to extend westward throughout the Gulf States wherever suitable localities exist.

A NEW WREN FROM THE LOWER RIO GRANDE, TEXAS, WITH NOTES ON BERLANDIER'S WREN OF NORTHEASTERN MEXICO.

BY GEORGE B. SENNETT.

FEW BIRDS have been more puzzling than the specimens of *Thryothorus* which I collected on the Rio Grande in 1877, and gave to the National Museum after sending them to Dr. Coues for identification. Many examples, all of the same general character, have since been obtained from the same locality. Certainly these birds cannot be placed with *T. ludovicianus*,—Carolina Wren,—

nor do they agree with *T. l. berlandieri* (see Baird, Birds of North Am., 1858, p. 362, pl. lxxxiii, fig. 1). The type and two other specimens collected by Lieut. Couch in 1853 are in the collection of the National Museum. (For previous records of these Rio Grande Wrens, see Bulletin U. S. Geological and Geographical Survey, Vol. IV, No. 1, p. 8, and note by Dr. Coues; also ibid., Vol. I, No. 3, p. 383; also Ridgway's 'Manual of North American Birds,' foot-note on p. 550.)

After the capture of three specimens of *T. l. berlandieri* in 1853, so long an interval elapsed before any more specimens were taken that Mr. Ridgway considered the form not well enough established to be given a place in his 'Manual.' Last year I obtained from my collectors three fine specimens of *berlandieri* from Victoria, Tamaulipas, Mexico, and this year I have received fifteen adults and one young from Nuevo Leon, Mexico, from the exact localities visited by Lieut. Couch in 1853. *Thryothorus l. berlandieri* can assuredly now be considered what Mr. Ridgway predicted,—a good tenable race; in fact it seems to me to be worthy the full specific rank given it by Prof. Baird. It is this accumulation of *berlandieri* specimens from northeastern Mexico that makes it possible to recognize the real status of the Rio Grande birds, for which I propose the name

Thryothorus ludovicianus lomitensis. LOMITA WREN.

SP. CHAR.—*Adult breeding plumage*: Upper parts grayish brown, grayer on head, reddish on rump; white spots on rump numerous and not wholly concealed. Auriculars brown; sides of neck behind auriculars conspicuously streaked (sometimes barred) with white and black. Wings and tail lighter than back; edges of wing and tail barred conspicuously with white and black; tail bars broken up more or less, showing great irregularity. Under parts: throat and breast white, the latter faintly washed with buff; belly buff; flanks barred more or less indistinctly with brown; under tail-coverts barred black and white.

Adult winter plumage: Upper parts chocolate brown, the under parts more strongly washed with buff and occasionally becoming quite tawny. On account of the seasonal variation of these Wrens I have designated three examples as types: a male and a female in the faded plumage of the breeding season, and a male in the darker plumage of winter.

Types: ♂, No. 2598 of my collection, taken by myself at Lomita Ranch, Hidalgo Co., Texas, April 24, 1878. ♀, No. 2592 of my collection, taken by myself at Lomita Ranch, Hidalgo Co., Texas, May 15, 1878. ♂, No. 2599 of my collection, taken by M. A. Frazar, at Lomita Ranch, Hidalgo Co., Texas, Feb. 23, 1880.

HABITAT. Lomita Ranch and Hidalgo, Texas, on the Rio Grande.

Compared with *T. ludovicianus* this race is much lighter in its general appearance; the color of the back is also different, *ludovicianus* being reddish brown or bright cinnamon, while *lomitensis* is of the chocolate order of browns, fading into grayish brown during the breeding season. There is also more white on *lomitensis* than on *ludovicianus*; the barring of the tail is also different. In *ludovicianus* the bars of black are wonderfully regular, extending across both webs in a continuous line, while in *lomitensis* the bars of black are joined by a shading of white or creamy and are broken and irregular, thus giving the general mottled appearance and lighter color. The flanks, too, in all old birds of *lomitensis* show a decided tendency to barring, while in *ludovicianus* this is wanting.

As compared with *T. l. berlandieri*, *lomitensis* is lighter all over; *berlandieri* is dark tawny below and very dark chocolate brown above, while *lomitensis* is buff below and a lighter brown above. Then, too, the flanks of adult *berlandieri* are distinctly barred, while the bars of *lomitensis* are not so clearly defined.

As compared with the southern Florida form, *miamensis*, the latter is larger, darker, with a stouter bill, and has much less white on the upper parts; the flanks, however, are barred pretty much the same. It will be seen that *lomitensis* is about intermediate between *T. ludovicianus* on the north, and the extralimital *T. l. berlandieri* of Mexico on the south. The large series of the forms on and adjacent to the Rio Grande now in my collection renders this separation not only possible but, I think, wholly tenable.

The average sizes of the four forms are as follows:

		Wing.	*Tail.*	*Exp.cul.*	*Trs.*
T. ludovicianus	per Ridgway's 'Manual'	2.35	2.09	.64	.81 inch.
T. l. miamensis	" " "	2.61	2.43	.78	.88 "
T. l. lomitensis	26 adults	2.24	2.05	.625	.83 "
T. l. berlandieri	20 "	2.26	2.11	.65	.81 "

This new race seems to be resident in that part of the Rio Grande Valley lying adjacent to the river where the forest is heaviest, for none of the forms of this genus has been taken either above or below this timber tract. Hidalgo, where I

first obtained the birds, and Lomita Ranch, where I secured the greatest number, are situated only eight miles apart on the Texas side of the river. In this locality the heavy timber is near the river, and north of it the chaparral extends for a distance of about fifteen miles; next, still northward, lies a desert of sand reaching more than fifty miles until it meets the strong vegetable growth of the valley of the Nueces River. The Wrens of this group found in the valley of the Nueces are typical *T. ludovicianus*, as also are those found along the Gulf coast from Corpus Christi to Galveston. *Berlandieri* seems to be resident in the timber tracts of higher altitudes, and I should hardly expect to find it nearer the United States than Monterey. *Lomitensis* will probably reach into Mexico only so far as extends the heavy timber of the lower Rio Grande. I have named the bird from the place where I found it to be most abundant.

My thanks are due Mr. Allen of the American Museum and Mr. Ridgway of the National Museum for the loan of specimens.

SECOND SUPPLEMENT TO THE AMERICAN ORNITHOLOGISTS' UNION CHECK-LIST OF NORTH AMERICAN BIRDS.

THE MATTER of publishing an annual supplement to the American Ornithologists' Union Check-List of North American Birds was referred by the Union to the Council at the meeting of the Union held in Washington in 1888. At a meeting of the Council held in New York City, Nov. 11, 1889, the Council by unanimous vote requested the Committee on Publications to prepare a report on the species, subspecies, and changes of nomenclature proposed during the year (Nov. 1888 to Nov. 1889), to be published as the Second Supplement to the American Ornithologists' Union Check-List, in 'The Auk,' for January, 1890.

In accordance with this authority the Committee on Publications held a meeting for this purpose, at the American Museum

of Natural History, on the day following the close of the Seventh Congress of the Union, and formulated the following report. A few questions were deferred for want of the necessary data to enable the Committee to reach satisfactory decisions.

In accordance with the wishes of the Council, the Committee, in the case of the rejection of proposed changes or additions, gives its reasons for considering them inadmissible.

The present supplement therefore consists of I, *Additions;* II, *Eliminations;* III, *Changes of Nomenclature;* IV, *Species and subspecies considered as not entitled to recognition.* The numbers at the left of the name facilitate collation with the Check-List. The interpolated species and subspecies are numbered in accordance with the provisions made therefor in the Code of Nomenclature. (See page 14, last paragraph.)

J. A. Allen.
William Brewster.
Elliott Coues.
Robert Ridgway.
John H. Sage.

I. ADDITIONS.

134 *a*. **Anas fulvigula maculosa** (Senn.).

Mottled Duck.

Anas maculosa Sennett, Auk, VI, July, 1889, 263.

[B 577, *part*, C 489, *part*, R 602, *part*, C 708, *part*.]

Hab. Eastern Texas and north to Kansas.

292 *b*. **Oreortyx pictus confinis** Anthony.

San Pedro Partridge.

Oreortyx picta confinis Anthony, Proc. Cal. Ac. Sci. 2d. ser. II, Oct. 11, 1889, 74.

[B—, C—, R—, C—.]

Hab. San Pedro Mountains, Lower California.

[322.1.] **Geotrygon montana** (LINN.).

Ruddy Quail-dove.

Columba montana LINN. S. N. ed. 10, I, 1758, 163.

Geotrygon montana BONAP. Consp. I, 1850, 72.

[B—, C—, R—, C—.]

HAB. Tropical America in general, including West Indies, north to Cuba and Eastern Mexico; accidental at Key West, Florida. (*Cf.* SCOTT, Auk, VI, April, 1889, 160, 161; July, 1889, 246.)

394 *b*. **Dryobates pubescens oreœcus** BATCH.

Batchelder's Woodpecker.

Dryobates pubescens oreœcus BATCH. Auk, VI, July, 1889, 253.

[B 77, *part*, C 299*a*, *part*, R 361*a*, *part*, C 441, *part*.]

HAB. Rocky Mountain region of United States.

FAMILY COTINGIDÆ. THE COTINGAS.

GENUS **Platypsaris** SCLATER.

Platypsaris SCL. P. Z. S. 1857, 72 (*ex* BONAP., 1854, = *nomen nudum*). Type, *Pachyrhamphus latirostris* BP.

441.1. **Platypsaris albiventris** (LAWR.).

Xantus's Becard.

Hadrostomus albiventris LAWR. Ann. Lyc. N. Y. VIII, 1867, 475.

Platypsaris albiventris RIDGW. Man. N. Am. B. 1887, 325.

[B—, C—, R—, C—.]

HAB. Western and Southern Mexico, north to Southern Arizona.

469.1. **Empidonax griseus** BREWST.

Gray Flycatcher.

Empidonax griseus BREWST. Auk, VI, April, 1889, 87.

[B—, C—, R—, C—.]

HAB. Lower California and portions of Sonora; Arizona?

481 *b*. **Aphelocoma californica obscura** ANTHONY.

Belding's Jay.

Aphelocoma californica obscura ANTHONY, Proc. Cal. Ac. Sci. 2d ser. II, Oct. 11, 1889, 75.

[B—, C—, R—, C—.]

HAB. San Pedro Mountains, Lower California.

571.1. **Junco townsendi** ANTHONY.

Townsend's Junco.

Junco townsendi ANTHONY, Proc. Cal. Ac. Sci. 2d. ser. II, Oct. 11, 1889, 76.

[B—, C—, R—, C—.]

HAB. San Pedro Mountains, Lower California.

583 *a*. **Melospiza lincolni striata** BREWST.

Forbush's Sparrow.

Melospiza lincolni striata BREWST. Auk, VI, April, 1889, 89.

[B 368, *part*, C 167, *part*, R 234, *part*, C 242, *part*.]

HAB. British Columbia.

611 *a*. **Progne subis hesperia** BREWST.

Western Martin.

Progne subis hesperia BREWST. Auk, VI, April, 1889, 92.

[B 231, *part*, C 117, *part*, R 152, *part*, C 165, *part*.

HAB. California (Ojai Valley) and Lower California.

681 *b*. **Geothlypis trichas ignota** CHAPM.

Florida Yellow-throat.

Geothlypis trichas ignota CHAPM. Auk, VII, Jan., 1890, 11.

[B 170, *part*, C 97, *part*, R 122, *part*, C 141, *part*.]

HAB. Florida, north to Southern Georgia.

718 *b*. **Thryothorus ludovicianus lomitensis** SENN.

Lomita Wren.

Thryothorus ludovicianus lomitensis SENN. Auk, VII, Jan., 1890, 58.

[B 265, *part*, C 47, *part*, R 60, *part*, C 68, *part*.]

HAB. Southeastern Texas.

730 *a*. **Sitta pygmæa leuconucha** ANTHONY.

White-naped Nuthatch.

Sitta pygmæa leuconucha ANTHONY, Proc. Cal. Ac. Sci. 2d. ser. II, Oct. 11, 1889, 77.

[B 281, *part*, C 41, *part*, R 54, *part*, C 61, *part*.]

HAB. San Pedro Mountains, Lower California.

751 *a*. **Polioptila cærulea obscura** RIDGW.

Western Gnatcatcher.

Polioptila cærula obscura RIDGW. Proc. U. S. Nat. Mus. V, March 21, 1883, 535, foot-note.

[B 282 *part*, C 23, *part*, R 27, *part*, C 36, *part*.]

HAB. California, Arizona, and Western Mexico.

II. ELIMINATIONS.

15. (Hypothetical List, p. 353). **Buteo fuliginosus** SCL. **Little Black Hawk.**

This has been conclusively shown to be a melanistic phase of *B. brachyurus* VIEILL. (*Cf.* SCOTT, Auk, VI, July, 1889, pp. 243-245, and RIDGW., Auk, VII, Jan., 1890, p. 90.)

III. CHANGES OF NOMENCLATURE.

211. **Rallus longirostris crepitans** (GMEL.). This becomes

Rallus crepitans GMEL.

Rallus crepitans GMEL. S. N. I. 1788, 713; SENNETT, Auk, VI, April, 1889, pp. 163, 165.

211 *a*. **Rallus longirostris saturatus** HENSH. This becomes

Rallus crepitans saturatus (HENSH.).

Rallus crepitans saturatus SENNETT, Auk, VI, April, 1889, pp. 164, 166.

211 *b*. **Rallus longirostris scottii** SENN. This becomes

211.1. **Rallus scottii** (SENN.).

Rallus scottii SENNETT, Auk, VI, April, 1889, pp. 165, 166.

469. **Empidonax obscurus** (SWAINS.). This becomes

Empidonax wrightii BAIRD.

Empidonax wrightii BAIRD, B. N. Am. 1858, 200 (in text). (*Cf.* BREWST., Auk, VI, April, 1889, p. 89.)

555. **Zonotrichia intermedia** RIDGW. This becomes

554 *a*. **Zonotrichia leucophrys intermedia** RIDGW.

Satisfactory evidence of the intergradation with *Z. leucophrys* of both this and the following has been seen by the Committee. (*Cf.*, RIDGWAY, Auk, VII, Jan. 1890, 96.)

556. **Zonotrichia gambeli** (NUTT.). This becomes

554 *b*. **Zonotrichia leucophrys gambeli** (NUTT.).

Zonotrichia leucophrys var. *gambeli* COUES, Key N. Am. Bds. 1872, 145.

Cf. RIDGWAY, Auk, VII, Jan. 1890, 96.

IV. SPECIES AND SUBSPECIES CONSIDERED AS NOT ENTITLED TO RECOGNITION.

Dryobates pubescens fumidus MAYNARD (Ornithologist and Oölogist, Apr. 1889, 58).

This was unanimously considered by the Committee to be a synonym of *Picus gairdnerii* Aud.

Cyanocitta stelleri litoralis [sic] MAYNARD (Ornithologist and Oölogist, Apr. 1889, 59).

This was unanimously rejected by the Committee, as being based on unstable characters, the same difference being observable, as an individual variation, in all the geographical races of this species. (*Cf.* CHAPMAN, Auk, VII, Jan. 1890, 91.)

Geothlypis trichas roscoe (AUD.) HASBROUCK, Auk, VI, April, 1889, 167, 168.

Rejected on the ground that *Sylvia roscoe* of Audubon is a synonym of *G. trichas* (Linn.), the Mississippi valley bird being not sufficiently different from that of the Atlantic coast to merit subspecific separation. The birds described by Mr. Hasbrouck belong to the Florida race, recently named by Mr. Chapman *G. trichas ignota*, Mr. Hasbrouck's error (for which he was not wholly responsible) being in identifying his birds with *Sylvia roscoe* Aud.

Sialia mexicana anabelæ ANTHONY (Proc. Cal. Ac. Sci. 2d ser. II, Oct., 1889, 79.)

Characters deemed not sufficiently constant.

Final action on the following was deferred, owing to lack of evidence respecting their status.

Turdus sequoiensis BELDING, Proc. Cal. Ac. Sci. 2d ser. II, June 11, 1889.)

550 *a*. *Ammodramus maritimus peninsulæ* ALLEN, vs. *Ammodramus peninsulæ*. (*Cf.* SCOTT, Auk, VI, Oct., 1889, 322.)

611.1. *Progne cryptoleuca* BAIRD, vs. *Progne subis cryptoleuca*. (*Cf.* SCOTT, Auk, VI, Oct., 1889, 325.)

SEVENTH CONGRESS OF THE AMERICAN ORTHOLOGISTS' UNION.

THE SEVENTH CONGRESS of the American Ornithologists' Union was held at the American Museum of Natural History, New York City, Nov. 12–15, 1889, the President in the Chair. The meeting was attended by twenty Active Members and thirty-two Associate Members.

The Secretary's report showed the status of membership at the opening of the Congress to be as follows: Active Members, 49; Honorary Members, 25; Corresponding Members, 68; Associate Members, 258.

During the year just past the Union lost by death one Corresponding Member, Dr. Eugen Ferdinand von Homeyer,* of Stolp, Pomerania, and two Associate Members, as follows: Mr. Wm. L. Breese,† of Islip, Suffolk Co., N. Y., and S. Lowell Elliott, Ph.D.,‡ of Brooklyn, N. Y. Since the founding of the Union one death has occurred among the Honorary Members, three among the Active Members, eight among the Corresponding Members, and twelve among the Associate Members. The Secretary presented a tabular statement of the membership at the opening of each congress of the Union, and the attendance at the meetings, which shows a steady and encouraging increase in respect to both membership and attendance, the statistics being as follows:

Number of Members.

	Active.	*Honorary.*	*Corresponding.*	*Associate.*	*Total*
1883	23				23
1884	44	20	16	63	143
1885	47	25	65	64	201
1886	45	25	69	112	251
1887	46	25	70	143	284
1888	45	25	67	161	298
1889	49	25	68	258	400

Present at Meetings.

		Active Members.	*Associate Members.*	*Total.*
1883,	New York	21	0	21
1884,§	"	16	4	20
1885,	"	16	6	22
1886,	Washington	20	13	31
1887,	Boston	17	12	29
1888,	Washington	20	17	37
1889,	New York	20	32	52

* For obituary note see 'The Auk,' Vol. VI, p. 341.

† See 'The Auk,' Vol. VI, p. 81.

‡ See 'The Auk,' Vol. VI, p. 206.

§ Two Honorary Members also were present.

The single vacancy in the Active list was later filled by the unanimous election of Dr. Arthur P. Chadbourne, of Cambridge, Mass. Four Corresponding Members were elected, as follows: Edward Bartlett, of Maidstone, Kent, England; W. Eagle Clark, of Leeds, England; Thomas Lyttleton, Lord Lilford, of London, England; and F. H. Waterhouse, Librarian to the Zoölogical Society of London, England. Eighty new members were added to the list of Associates.*

The Treasurer's report showed the finances of the Union to be in good condition, there being no outstanding bills and a small balance in the treasury.

The election for officers resulted in the unanimous re-election of the President, Vice-Presidents, Secretary, and Treasurer. The Secretary, Dr. C. Hart Merriam, however, declined, greatly to the regret of the Union, to accept a re-election. Mr. William Brewster was then unanimously chosen as his successor, but also declined to serve. The third ballot resulted in the choice of Mr. John H. Sage. A single change was made in the list of Councillors, Dr. C. Hart Merriam being elected in place of Mr. McIlwraith.

Under the call for reports of Standing Committees, Dr. Merriam, Chairman of the Committee on the Geographical Distribution and Migration of North American Birds, rendered a verbal report of progress. The work of collating and mapping the data hitherto collected respecting the geographical distribution of North American birds, is being carried on as a part of the work of the Division of Economic Ornithology and Mammalogy of the U. S. Department of Agriculture, as rapidly as the limited force of the Division will permit; the Migration Schedules are sent out as usual, but the returns have not as yet been to any great extent elaborated, owing to lack of proper clerical assistance.

The report of the Committee on Avian Anatomy (Dr. Elliott Coues, Chairman), was made by the Secretary of the Committee, Dr. R. W. Shufeldt. This consisted of a brief but comprehensive review of the work done during the last year in this important field, throughout the world.

---

*The names of the new Associate Members, so far as they have qualified to date will be found in the Membership lists issued with the present number of 'The Auk.'

Mr. George B. Sennett, Chairman of the Committee on the Protection of North American Birds, made a verbal report of progress. The Committee is continuing its efforts to educate the public and influence legislation in behalf of better protection of birds. The law on this subject recently enacted by the State of Pennsylvania, in a measure through the influence of the Committee, was commended as the best thus far adopted by any of the States.

In behalf of the Audubon Monument Committee (Dr. George B. Grinnell, Chairman) Mr. Sennett, in the absence of the Chairman, recapitulated the work of the Committee during the past year. The contributions received had been small, and the interest in the project disappointingly weak. It was hoped that plans now under consideration by the Committee of the New York Academy of Sciences would stimulate new interest in the movement.

The first day of the Congress was wholly devoted to routine business, including action on various amendments to the By-Laws proposed at the preceding Congress, and the proposal of others for final consideration next year. The second, third, and fourth days were occupied with the reading and discussion of scientific papers, a number of which proved of special importance and interest. Following is a list of the papers, those marked with an asterisk being read by title, or presented only in abstract:

Remarks on San Francisco Mountain and vicinity (Arizona) from the Faunal standpoint. Dr. C. Hart Merriam.

Observations on the Avifauna of Arizona. Dr. Edgar A. Mearns.

The Winter Distribution of the Bobolink (*Dolichonyx oryzivorus*), with Remarks on its Routes of Migration. Frank M. Chapman.

On the Changes of Plumage in the Bobolink. Frank M. Chapman.

To what extent is it profitable to recognize Geographical Variation among North American Birds? J. A. Allen.

Birds that have struck the Statue of Liberty, Bedloe's Island, New York Harbor. Jonathan Dwight, Jr.

On the Forms of the *Thryothorus ludovicianus* group of Wrens. J. A. Allen.

On the Eastern Forms of *Geothlypis trichas*. Frank M. Chapman.

Observations on some of the Summer Birds of the Mountain Portions of Pickens County, South Carolina. Leverett M. Loomis.

*Notes upon *Coccothraustes vespertinus* as a Cage-bird. Dr. R. W. Shufeldt.

Remarks on Waterhouse's 'Index Generum Avium.' J. A. Allen.

Remarks on Dr. Blanchard's Report to the Congrès International de Zoologie, on a Code of Nomenclature, presented at the Paris Session, 1889. J. A. Allen.

*On Peculiarities of Coloration in the Woodpeckers of the Genus *Dryobates* from the Northwest Coast. Frank M. Chapman.

Note on *Cyanocitta stelleri litoralis* Maynard. Frank M. Chapman.

On the Western Form of the Warbling Vireo. Dr. Edgar A. Mearns.

*On Seasonal and Individual Variation in certain Flycatchers of the Genus *Elænea*. J. A. Allen.

Abundance of the Wild Pigeon in Central and Eastern New York in 1835. Prof. R. P. Whitfield. (By invitation.)

Phalænoptilus nuttalli nitidus.—Is it a valid Race? Col. N. S. Goss.

The Mottled Duck in Kansas. Col. N. S. Goss.

Some Michigan Birds observed near the Straits of Mackinac during 1888. Jonathan Dwight, Jr.

*Notes on the Habits of some of the Birds of Orange County, Florida. B. Mortimer.

The Little Brown Crane (*Grus canadensis*) in Rhode Island. William Brewster.

Capture of the Canada Jay (*Perisoreus canadensis*) near Cambridge, Mass. William Brewster.

*The Maximilian Types of South American Birds in the American Museum of Natural History. J. A. Allen.

Mr. Brewster exhibited and made remarks upon the Western form of the Purple Martin (*Progne subis hesperia*), and Mr. Sennett showed various interesting birds from Mexico, including Motmots (*Momotus cæruleiceps*) and Trogons (*Trogon am-*

biguus and allies). He called attention to specimens of the former in which the middle tail-feathers had not been denuded into the usual racket-shaped form, and stated the prevailing theories offered in explanation of the racket-shaped tail-feathers in the Motmots. He also called attention to a peculiar, dark-colored, and otherwise abnormal specimen of the Carolina Rail taken at Erie, Pennsylvania.

On the afternoon of the third day some time was spent in informal session in examination of the Thrushes and Horned Larks sent in by various members for exhibition at the meeting.*

Resolutions were adopted extending the thanks of the Union to the President and Trustees of the American Museum of Natural History for the use of the Museum building as a place of meeting, and for other courtesies; to the Linnæan Society of New York for the collation daily provided for the members; and to Dr. C. Hart Merriam in recognition of his untiring labors as Secretary during the last six years, to which the success of the Union is so largely to be ascribed.

In point of attendance, and in the number and character of the papers presented, the Seventh Congress proved the most successful of the series.

It was voted to hold the next meeting in Washington, on the third Tuesday of November, 1890.

RECENT LITERATURE.

Waterhouse's 'Index Generum Avium.'† The character, scope, and purpose of this extremely useful work cannot be better expressed than by the quotation of a paragraph from its preface by Mr. P. L. Sclater. "It will be observed that, as its title implies, the 'Index Generum Avium,' consists merely of an alphabetical list of about 7000 terms that have been employed or suggested by various authors, since the date of the twelfth edition of Linnæus's 'Systema Naturæ,' as generic and subgeneric names for birds, and references to the places and dates of their publication. No attempt has been made to discriminate between these various terms as to

*See further on this matter a paragraph under 'Notes and News' of this issue of 'The Auk.'

† Index Generum Avium. | — | A List | of the | Genera and Subgenera of Birds. | By | F. H. Waterhouse, A. L. S., | Librarian to the Zoölogical Society of London. | — | London: | R. H. Porter, 18 Princes Street, Cavendish Square. | 1889.—8vo. 3ll,+ pp. 240.

which of them should be most correctly employed. Such points are left for the decision of those who use the 'Index.' But so much time is often lost in ascertaining where and when a generic name was first given, that it is believed that the information thus accumulated in a handy form cannot fail to be of much practical value.

"The author does not profess that the 'Index' is complete, but as Librarian of the Zoölogical Society of London, and thus with one of the best series of ornithological books in the world at his command, he has done his utmost to render it free from errors and omissions. Except in the few cases [ten only!] where they are marked with an asterisk, all the references have been personally verified."

Mr. Sclater states that the plan and execution of the work "are entirely due to Mr. Waterhouse," and that he has "only assisted him by general advice, by looking over the proof-sheets, and by writing these few words of preface."

With such facilities, and with the aid of such previous compilations in the same line as those of G. R. Gray, Agassiz, Bonaparte, Giebel, Marschall, and Scudder, there should certainly be very few omissions, and very few errors of citation, yet the work being of human origin a few such imperfections should be inevitable, but so far as we have examined they are extremely rare.*

The most serious defect in the work and, we cannot help feeling, a glaring one, relates to its plan and scope, by which all work (except Brissonian) done prior to the twelfth (1766) edition of Linnæus's 'Systema Naturæ' is ignored; — and this too in the year 1889, in face of the fact that three fourths of the biologists, taking the world at large, begin with the tenth (1758) edition of Linnæus's great work, or earlier, as the starting point for generic names! Consequently over forty Linnæan generic names adopted in the tenth (1758) edition are ascribed to the twelfth (1766), and some twenty others to Brisson, who adopted them in 1760, mostly from Linnæus, or some earlier writer.

Another defect to which it seems necessary to call attention is the occasional citation of purely vernacular French names (mostly from Cuvier and Lesson) as though they were proper generic terms. This reprehensible fashion was started by G. R. Gray in 1840 (in 'A List of the Genera of Birds', etc.); these are not only cited in the work under notice (many of them in fact properly enough, being in a certain sense adopted as, or at least treated as, generic or subgeneric names by Gray), but we meet with a number of new ones, as, *e. g.*, 'Barbacous,' 'Cacatoes,' and 'Jabirus' from Cuvier, and 'Caïaca' (="Les Caïacas" Less.), 'Papegais', etc., from Lesson. Gray Latinized and adopted many such terms, and they

* *E.g.*, *Buceros*, Linn., 1758, is ascribed to Brünnich, 1772; *Phaethon*, Linn., 1758, is ascribed to Illiger, 1811; *Bombycilla*, a Brissonian name, is credited to Vieillot, 1807; "*Abia*, Agassiz, 1840," is incorrectly given as "=*Habia* Cuv." Turning to *Habia* (p. 91) we find it there credited to Vieillot, 1817, where, however, it is employed as merely a French vernacular name. *Habia*, as a proper generic name, dates really from Reichenbach, 1850, as fully shown some five years ago by Dr. Stejneger in 'The Auk' (Vol. I, 1884, p. 366).

should hence take their date and authority from Gray, and not from their prior use in a vernacular sense by the French authors.

Variations in orthography, due to emendations or to typographical errors, are quite freely given, but by no means exhaustively; thus in such striking cases as *Sayornis* and *Sayiornis*, *Pediocætes* and *Pediœcetes*, not infrequently only the original form is cited, while in the case of *Poocætes* and *Poœcetes*, both forms are given.*

As a whole Mr. Waterhouse's 'Index' is a work of great merit, involving an immense amount of patient, painstaking, arduous labor, for which systematic ornithologists the world over will be truly grateful.—J. A. A.

Blanchard on the Nomenclature of Organized Beings.†—This 'Report' is more general in its scope than the 'Code of Nomenclature' of the American Ornithologists' Union, dealing as it does with Botany and Palæontology as well as with living animals, and hence has to confront questions arising from the peculiar conditions met with among the lower forms of animal life (where larval forms have been made the basis of species and genera, and in Palæontology, where species and genera have been based on parts of an organism), which the A. O. U. Committee were not especially called upon to consider. It is pleasant to find, however, the present report in nearly complete harmony with the rulings of the A. O. U. Committee, as regards not only leading principles but in special cases, where the ground covered is the same.

The chief points of difference from the A. O. U. 'Code' relate to the starting point for the beginning of the binomial system, and the matter of emendation of names. As to the first, the 'Report' takes the tenth (1758) edition of Linnæus's 'Systema Naturæ' as the real starting point (as does also the A. O. U. 'Code') but makes reservations in favor of (1) Tournefort (Botany, 1700; Mollusks, 1742), (2) Lang (Mollusks, 1752), (3) Klein (Mollusks, 1753), (4) Clerck (Spiders, 1757), and (5) Adanson (Mollusks, 1757), the works of these authors conforming strictly to the binomial system. The action of the 'Law of Priority' is thus not strictly limited in point of time, but by the following conditions: "Article XI. Le nom attribué à chaque Genre et à chaque Espèce ne peut être que celui sous lequel ils ont été le plus anciennement désignés, à la condition: *a.*—Que ce nom ait été divulgué dans une publication où il aura été clairement et suffisamment défini; *b.*—Que l'auteur ait effectivement entendu appliquer les règles de la nomenclature binaire."

In discussing the 'Law of Priority' Dr. Blanchard revives and emphasizes the strictures made by M. Chaper in his report on the same subject‡

* Singularly, however, the change of *Poocætes* to *Poœcetes*, is ascribed to Sharpe, 1888, though made by Coues some ten years earlier.

†De la Nomenclature des êtres organisés. Rapport présenté au Congrès International de Zoologie par le Dr. Raphaël Blanchard, Professeur-Agrégé à la Faculté de Médicine de Paris, Secrétaire général de la Société Zoologique de France.> Congrès International de Zoologie, Paris, 1889. Rapports présentés au Congrès International de Zoologie. July, 1889, pp. 87–157.

‡ De la nomenclature des êtres organisés. 8vo, pp. 37, 1881.

to the Société Zoologique de France, in 1881, he very justly ascribing to Tournefort "la gloire d'avoir fondé la nomenclature binaire," which for so many years has been wrongfully assigned to Linnæus, the latter merely formulating the rules in a more precise and general manner than had been done by any of his predecessors. While he, in his rules, insisted upon the strict observance of the rule of propriety, he, "sans autre motif que de satisfaire à sa vanité" rejected genera and species firmly established by his predecessors, who were often far better zoölogists than was Linnæus.

Dr. Blanchard regretfully considers the use of trinomials, and even quadrinomials, admissible (see pp. 94-96, and 150) in special cases,* as in descriptive works where it is necessary to distinguish diverse forms belonging to the same species. Indeed, he believes the adoption of the system inevitable, its use is already so extended.

In respect to the emendation of names, Dr. Blanchard's ruling is radically opposed to that favored by the A. O. U. 'Code.' He says: "Article XIV. Tout barbarisme, tout mot formé en violation des règles de l'orthographe, de la grammaire et de la composition devra ête rectifié" (p. 147). Again he says (p. 157), all such words should be *rejected* ("rejeté"). Dr. Blanchard and our 'Code,' which says the "original orthography of a name is to be rigidly preserved, unless a typographical error is evident," thus represent the two extremes of this question. We still believe the ruling of the A. O. U. Committee on this point is sound in principle, but yet susceptible of a slight modification in the interest of uniformity in respect to genitive terminations, and in the transliteration of Greek vowels.—J. A. A.

Ridgway's Ornithology of Illinois.† — From Prof. Forbes' 'General Introduction' we quote: "This volume is the first to appear of a series on the zoölogy and cryptogramic botany of the State of Illinois, authorized and provided for by the Thirty-fourth General Assembly.‡

"The series is intended to summarize the facts relating to the natural history of Illinois which have been accumulated by general investigations made in the districts of which the State forms a part, by the studies of local naturalists, and by the operations of the State Laboratory of Natural History .... In the preparation of the volumes of the report it will be our main final object to furnish the materials for a full and accurate picture of the native plant and animal life of Illinois as it actually exists in our fields, woods, and waters, and to bring most prominently into view those parts of the subject which have a peculiar educational or economic value. ....

"The volume here presented is due to the generous and disinterested

* "Dans les cas spéciaux où il est utile de distinguer des variétés, l'adjonction d'un troisième nom à ceux du genre et de l'espèce est permise " (p. 150).

† Natural History Survey of Illinois, | State Laboratory of Natural History, | S. A. Forbes, Director. | — | The | Ornithology | of Illinois. | — | Part I, Descriptive Catalogue, | By Robert Ridgway. | Part II, Economic Ornithology, | By S. A. Forbes. | — | Volume I. | —Published by Authority of the State Legislature. | — | Springfield, Ill.: | H. W. Rokker, Printer and Binder, | 1889, Roy. 8vo. pp. i-viii, 1-520, colored frontispiece, plates, i-xxxii.

‡ "Laws of the State of Illinois, 1885, p. 23, sec. 3."

labors of Dr. Robert Ridgway, formerly of Mt. Carmel, Illinois,—an ornithologist whose long and eminent service in the Smithsonian Institution and the United States National Museum seems only to have intensified his interest in the promotion of the study of his favorite science in his native State. . . . .

"The long delay in the publication of Volume I has been due partly to the pressure of other duties and to lack of office assistance, but chiefly to the destruction by fire in the printing office in February, 1889, of an entire edition of the volume and of the plates and cuts from which it was printed.

"To the characteristic generosity of the honored and lamented Dr. Spencer F. Baird, we owe the illustrations of this volume, with the exception of the frontispiece,—all being printed from copies of cuts loaned to the Laboratory by the Smithsonian Institution."

In the preface which follows, the author speaks of the conditions under which his task was performed, and of the material on which it is based, making here full acknowledgment for the permission to use the specimens contained in the National Museum, and in the private cabinets of various students residing in the State, who have also placed at his disposal the results of their observations.

"On account of the limited time allotted" for the completion of the work (one year) the author has "found it necessary to draw to a certain extent upon previous publication," but we do not observe that he has more than properly availed himself of this privilege, the quoted technical portions being mainly restricted to generic, subgeneric or specific diagnoses from the History of N. A. Birds, and descriptions of first plumages from Mr. Brewster's well-known paper, which in each case are accredited to their source.

The work now opens with an introduction of 36 pages, which is divided into two parts, concludes with a bibliography, and is a model for future faunal works of this nature. 'Part I, the Physical Features of the State' is subdivided into four sections which under the headings of 'General,' 'The Lake Shore District (by E. W. Nelson),' 'The Prairies,' 'The 'Southern Bottom Lands,' and 'Climate,' treat of the State from physiographical, floral, faunal, and climatal standpoint. 'Part II, Characteristic Features of the Avifauna of the State,' presents a series of analytical table which divide the birds recorded from the State as follows: 'A. Species which have been observed in Winter over the greater portion of the State, many of them regular Winter residents,' 91. 'B. Species which have been observed in Winter only in the Southern portion of the State (latitude of Mount Carmel, or further South)' 63. 'C. Species occurring in Winter in the Northern portion of the State, but not yet observed as far South as Mount Carmel,' 31. 'D. Summer residents of General Distribution,' 148. 'E. Summer residents confined mainly, so far as known, during that season to the Northern portion of the State,' 44. 'F. Summer residents which, so far as known, are confined mainly to the Southern portion of the State,' 13. 'G. Summer visitants to the Southern portion of the State, but not ascertained to breed within our limits,' 10. 'H. Irregular or casual visitants from the Western Province,'

14. 'I. Regular residents or visitants which intrude from the Westward,' 11, of which 4 are "observed only in summer," 3 "only in winter or during migration," and 4 "irrespective of season." 'J. Stragglers and doubtful species, the former including those of which not more than one specimen has been taken or observed,' 14. 'K. Species formerly occurring, but possibly not now to be found in the State,' 5.

The second section of this part treats of the State's "position with regard to Faunal Provinces or Districts." Illinois is considered to lie far within the Eastern, or Atlantic, Province, and were it not for the prairies the fauna would probably not possess the slightest tincturing of western forms." This last is no doubt very true, but we fail to see why the effect should not be recognized when the cause is so evident. In the same manner we might say that without the southern bottom-lands, which the author further mentions, certain species from the southern portions of the State would not exhibit an approach toward Florida or Gulf Coast forms, which the author states is observable. It seems to us that this eastern extension of the prairies, bringing with it as regular visitants such prairie-loving species as *Chondestes grammacus*, *Ammodramus lecontei*, *Spizella pallida*, *Sturnella magna neglecta*, etc., marks an eastern extension of the Campestrian Sub-province which the author characterizes on page 246. The State is further considered to be "wholly embraced within the 'Carolinian Fauna,'" although the author's table 'E' includes among its 44 summer residents of the northern portions of the State at least 40 species which are not generally considered to characterize this fauna. With regard to what the author designates "so-called geographical variation," "Illinois likewise belongs strictly to the Eastern or Atlantic Province, none of the resident or summer resident species showing any tendency toward the representative forms which belong to the Western Province, except very rarely or sporadically, and apparently not more frequently than along the Atlantic coast itself," the single exception "being the case of *Geothlypis trichas*, the Illinois form of which seems to be the western race, *G. trichas occidentalis* Brewst., which apparently replaces true *G. trichas* everywhere west of the Alleghanies," a statement with which, in this particular case, we cannot agree. Section three of Part II relates to migration, and presents tables, chronologically arranged, showing the times of arrival and departure of transient species, and also the dates of flowering of certain plants and trees. The observations of Messrs. Henshaw and Palmer at Washington, and of Mr. Otto Widmann at St. Louis are here included for comparison with similar observations made by the author at Mount Carmel, Illinois, and Wheatland, Indiana.

This excellent introduction, containing more valuable information than is usually compassed by an entire volume of this nature, concludes with a bibliography which, from 1853 to 1885, enumerates the titles of 44 publications "actually consulted" by the author.

The remaining 457 pages are devoted to brief biographies, and the systematic treatment of the 216 land birds included in this volume. The nomenclature of the A. O. U. Check-List is adopted, but the order therein

followed is reversed and altered, the first species mentioned being *Turdus mustelinus*, the last, *Zenaidura macroura*. The author's vast experience in descriptive work permits him to handle his subject in a masterly manner; there are analyses to the higher groups, families, and genera, and keys to the last which define all the then recognized species and subspecies of Eastern North American birds belonging to them. This is new matter; the generic, subgeneric, and specific diagnoses and descriptions, as before stated, are frequently quoted, but they are taken from a worthy source, and the birds have not to our knowledge changed perceptibly since they were written, though, it is true, we do now see many things in the light of a new understanding, which were then obscure. We would not then, for instance, have considered *Sturnella magna neglecta* a species, in fact its recognition as a race was open to question, but we find on page 314, it is accorded full specific rank. Nor would we then have admitted the author's earlier view, to which he now returns, concerning the specific distinctness of *Quiscalus quiscula æneus*. It is true these views are not yet accepted; but there is evidently a tendency in this direction. It will be quite useless here to go further into this portion of the work; the author's name is a sufficient guarantee of its value and accuracy, and we hope the edition will permit its being placed in the hands of every student of North American ornithology, if not in the hands of every student of ornithology whatever be the country to which he devotes himself, for the model here presented is in every respect worthy his attention. It is a reviewer's duty to speak with equal candor of both the good and bad sides of the book before him, but we must confess this volume is possessed of a one-sidedness which renders it barren ground for the most fault-finding critic; the typographical errors are for the greater part unimportant and evidently beyond the author's control, and when we consider the limited time allowed him for the completion of his task, which was further curtailed by the official duties of a busy life, we can only admire the energy and ability which has enabled him to accomplish it so quickly and so well. — F. M. C.

Menzbier's Ornithology of Turkestan.*—The first part of Menzbier's great work on the ornithology of Turkestan, recently received, contains four colored plates and over one hundred pages of text, besides the long preface explanatory of the origin and scope of the work. The author has set before himself the serious task of treating monographically all the species of Turkestan, and the lands adjacent, — a region extending from the Lower Volga to Mongolia, and from southwest Siberia to Pamir. The work is based primarily on the immense collections and notes gathered by the late Dr. N. A. Sewertzow during his twenty-one years' exploration of this region under the auspices of the Russian Goverment. Dr. Sewertzow unfortunately died at the beginning of his work on his ornithological collections, leaving it to be carried forward by his devoted friend,

*Ornithologie du Turkestan et des Pays adjacents. Par M. le Docteur M. A. Menzbier. Premier livraison. Avec un Atlas de 4 Planches. Moscow, 1888, 4to, pp. viii+ 12.

Dr. Menzbier. As already stated (Auk, Vol. V, p. 447), the work will comprise six large quarto volumes, with about eighty colored plates. Volume I will consist of a biography of Sewertzow, a list of the birds of his collection, and a general summary of the fauna of Turkestan, the remaining five volumes treating in detail of the birds in systematic order, beginning with the Birds of Prey.

The first livraison of Volume II contains the Vultures and Eagles, sixteen species of which are treated, the text ranging from four to twelve pages to each.

. A very full citation of bibliographical references is followed by detailed descriptions of the various phases of plumage each species presents, while much space is given to the geographical distribution of each and to biographical observations.—J. A. A.

Nehrling's Bird Biographies.*—Final judgment upon this notable undertaking must be deferred until the completion of the work. At present, we can form a tolerably clear opinion of what it will be, if the promise of the prospectus is fulfilled. The early parts, which came to hand some months ago, fully sustain the publisher's announcement, and we shall watch with interested attention the progress of an enterprise which commends itself to all true lovers of bird-life. We see no reason why Mr. Nehrling should not re-gather the lines which dropped from this hand twelve years ago, and weave them into a useful, attractive and enduring fabric.

Mr. Nehrling's name is not a new one in ornithological literature, though perhaps better known to the German than to the American public as a writer on American birds. Many sketches and some more formal bird biographies of his have already appeared in German periodicals, showing him to be a careful and faithful observer, a competent author, and above all a feeling writer, in full touch with the spirit of the beautiful airy beings whose lives he portrays. The present writer has spent too many years in the technicalities and formalities of ornithology to be misunderstood as depreciating the value of such tough fibre in the development of our science. Yet there is a 'height beyond,' which the ornithologist must reach before he can understand any bird, no matter how intricate and consummate may be his knowledge of the partialities, peculiarities and particularities of many birds. Wilson and Nuttall and Audubon each reached that height; so did Michelet and Thoreau; so have John Burroughs, W. L. Shoemaker and Wilson Flagg; all told the story from a keen ether, above the clouds of synonymy and diagnoses; while Nehrling follows, at no appreciable interval.

Only those who are in the secret will realize how high is the praise we

*North American Birds. By H. Nehrling. 4to. Pub. in parts, paper, 40 to 48 pp. text in each, with 3 pll. col'd. (Prospectus calling for 12 parts, 36 plates, to be completed in 1890.) Parts I, II, pp. 1-96, and six plates. Milwaukee: Geo. Brumder, 1888. Also published simultaneously in German, *Die Nord-Amerikanische Vogelwelt*, u. s. w., Verlag von Geo. Brumder.

pleasurably seek to give here. "Ideas rule the world absolutely;" but they never rule more effectually or more lastingly than when they appeal to the emotional nature. Sternly rational ideas on which the judgment stamps the seal of approbation are necessary; but they are inert in comparison with the momentum of vivid sentiment, they move nothing, not even themselves; they lack life; they lack the luxury of sentiment, of enthusiasm, of inspiration, of poetry, and consequently have no kinship with man's best consciousness. Therefore is is true that, given the luxuries of life, we can dispense with its necessaries.

Mr. Nehrling seems to have a message to deliver. If this be so, and the message he brings be a true one, he will not want for hearers. If we may whisper a word of suggestion, thus early in the course of his study, it would be to keep the technicalities of the subject in the background, wholly subordinated to the main plot. His forte is the life of birds, not their dead bodies, still less their checkered synonyms. A very little such pig-iron will be ballast enough to keep things snug and trim. A terse identifiable description and one select scientific name are all the formality this history needs to stand upon, for the rest let it use wings.

With our author are the fruitful results of much personal experience, thought and feeling, shapen with a living pen. We recall no other one who has written so well in a foreign language. It makes us wish we could follow him with equal ease and pleasure in his mother tongue. For his work enjoys the distinction, perhaps singular in American ornithological literature, of original composition and simultaneous appearance both in English and in German. This argues a faith in his audience which we trust the event will justify when the publisher shall have brought his enterprise to successful conclusion. We may then return to the subject. This preliminary notice must be scarcely more than a word of encouragement, commendation and hearty welcome. Were we in more critical or fastidious mood, the plates of the work might feel the prick of the pen, unless we should keep in mind the price at which they are offered to the public.—E. C.

Minor Ornithological Publications.—In the last few years the Country has been almost flooded by 'amateur' periodicals devoted to natural history, especially to oölogy. Some of these are the productions of youthful collectors whose good intentions are only equalled by their ignorance. Others are issued largely as advertising mediums by dealers in specimens and 'curiosities.' They contain much matter that is unreliable, owing to inexperience and perhaps occasionally to dishonesty on the part of the writers. There is more which relates to well-known habits of common birds, and though extremely useful to the beginners in ornithology who make up the bulk of the readers, is of no scientific importance. Among all this chaff there are nevertheless here and there items of considerable interest and value which ought not to be overlooked.

One of the best of these journals, **The Sunny South Oölogist**, edited and published by Edwin C. Davis at Gainesville, Texas, although it showed

much promise of excellence, had a brief career of only three months (March-May, 1886). In these three numbers the following articles and notes (Nos. 1487-1507) are worthy of reference:—

1487. *The Waxwings.* By W. L. Kells. '*The Sunny South Oölogist,*' Vol. I, No. 1, March, 1886, pp. 1-2.

1488. *Collecting Among the Sea Birds of Maine.* By V. E. Piston. *Ibid.*, pp. 2-3.—Birds breeding near Rockland, Maine.

1489. *Chuck-will's-widow.* By F. D. Foxhall. *Ibid.*, p. 3.

1490. *The American Goldfinch.* By George H. Selover. *Ibid.*, pp. 6-7.

1491. *Colorado Birds. Black-billed Magpie.* By Fred. M. Dille. *Ibid.*, pp. 7-8.

1492. *The Blue Grosbeak.* By J. A. Singley. *Ibid.*, p. 9.—Nesting habits.

1493. *Nesting of White Eye or Florida Towhee.* By G. Noble. *Ibid.* p. 9.

1494. *Notes from Southern California.* By A. M. Shields. *Ibid.*, No. 2, April, 1886, pp. 13-14.—On some winter birds.

1495. *Egg Collecting in Colorado.* By Fred. M. Dille. *Ibid.*, p. 15.

1496. *Nesting of Brown-headed Nuthatch.* By G. Noble. *Ibid.*, pp. 15-16.

1479. *Early Finds.* By J. A. Singley. *Ibid.*, pp. 16-17.—Dates of nesting in Texas.

1498. *The Scissor-tailed Flycatcher.* By. E. C. Davis. *Ibid.*, p. 17.

1499. *The Road-runner; Chaparral Cock.* By J. A. Singley. *Ibid.*, p. 24.

1500. *The Orioles.* By Wm. L. Kells. *Ibid.*, No. 3, May, 1886, pp. 25-28.—A popular account of *Icterus galbula*, *I. spurius*, *Sturnella magna* and *Molothrus ater*, as observed in Ontario.

1501. *Bell's Vireo.* By E. C. Davis. *Ibid.*, p. 28.

1502. *Colorado Birds.* By Fred. M. Dille. *Ibid.*, p. 29.—*Calamospiza melanocorys* and *Ægialitis montana.*

1503. [*Larus atricilla near Gainesville, Texas.*] Editorial. *Ibid.*, p. 30.

1504. *The Evening Grosbeak.* By F. A. Patton. *Ibid.*, pp. 31-32.

1505. *The Red Crossbill.* By F. A. Patton. *Ibid.*, p. 32.

1506. *Interesting Items from a Dakota Note-book.* By George Wilder. *Ibid.*, pp. 36-37.—Brief notes on nesting habits of a dozen species.

1507. [*Red-shafted Flicker and Rocky Mountain Screech Owl.*] By Fred. M. Dille. *Ibid.*, p. 39.—Nesting in the eaves of a house.

'The Bay State Oölogist,' edited and published monthly by W. H. Foote, at Pittsfield, Mass., was first issued in January, 1888, and closed its existence with Vol. I., No. 6, June, 1888. We note the following (Nos. 1508-1518).

1508. *Notes on Some Birds of Texas.* By J. A. Singley. '*The Bay State Oologist,*' Vol. I., No. 1, Jan., 1888, pp. 1-3; No. 2, Feb., 1888, pp. 8-11; No. 4, April, 1888, pp. 25-26; No. 5, May, 1888, pp. 42-43; No. 6, June, 1888, pp. 48-49.

1509. *The White-breasted Nuthatch.* By J. W. Jacobs. *Ibid.*, pp. 3-4.—Nesting habits.

1510. *Nesting of the Traill's and Acadian Flycatchers.* By Philo W. Smith, Jr. *Ibid.*, pp. 5-6.

1511. *The Kentucky Warbler.* By E. F. Koch. *Ibid.*, p. 7.

1512. *Nesting of the Rough-winged Swallow in St. Louis, Mo.* By Philo [W.] Smith, Jr. *Ibid.*, No. 2, Feb., 1888, p. 11.

1513. *A Day with the Fish Hawks on Seven Mile Beach.* By C. S. Schick. *Ibid.*, pp. 13-15.—Various species noted breeding on the New Jersey coast.

1514. *Tufted Titmouse.* By J. W. Jacobs. *Ibid.*, p. 15.—Including a note on *Molothrus ater.*

1515. *Among the Raptores.* By Dr. W. S. Strode. *Ibid.*, No. 3, March, 1888, pp. 17-19.—At Bernadotte, Ills.

1516. *Nesting of the Fish Crow.* By C. S. Schick. *Ibid.*, p. 24.

1517. *The Pileated Woodpecker.* By J. W. Jacobs. *Ibid.*, No. 4, April, 1888, p. 31,

1518. *The Blue-gray Gnatcatcher.* By J. W. Jacobs. *Ibid.*, No. 6, June, 1888, pp. 46-47.—Nesting habits.

In May, 1884, Frank H. Lattin began publishing, as a monthly, '**The Young Oölogist**' at Gaines, N. Y. At the close of Vol. I the place of publication was changed to Albion, N. Y. After the issue of Vol. II, No. 2, June, 1885, the publication was suspended, but it was resumed January, 1886, as a bi-monthly, with a change of name to '**The Oölogist,**' beginning now as Vol. III. Since January, 1888 (Vol. **V**, No. 1) it has again been issued as a monthly. It may be well to call the attention of bibliographers to the facts that sometimes two numbers have been issued in one, that the pagination sometimes, but not always, includes the advertising pages, and that in Vol. IV it skips, apparently by a printer's blunder, from p. 14 to p. 71. Vols. I-VI inclusive (1884-1889), contain the following notes and articles (Nos. 1519-1635) that are worth referring to.

1519. *Great Horned Owl.* Editorial. '*The Young Oologist,*' **Vol. I**, No. 1., May, 1884, p. 5.

1520. *Ground Dove* (*Chamæpelia passerina*). By T. D. Perry. *Ibid.*, p. 10.

1521. *Painted Bunting or Nonpareil* (*Passerina ciris*). By Troup D. Perry. *Ibid.*, No. 2, June, 1884, p. 21.

1522. *California Mottled Owl.* By H[arry] R. T[aylor]. *Ibid.*, p. 23.

1523. *Chewink, Sora Rail, Cooper's Hawk.* By E[d.] S. B[owman]. *Ibid.*, p. 28.

1524. *Oological Items from Waterville, Maine.* By C[harles] B. W[ilson]. *Ibid.*, No. 3, July, 1884, p. 35.

1525. *Yellow-shafted Flicker.* By W. B. K[enrick]. *Ibid.*, p. 35.

1526. *Orchard Oriole* (*Icterus spurius*). By T. D. Perry. *Ibid.*, p. 38.

1527. *Turkey Buzzard.* By M. A. S[herman]. *Ibid.*, p. 39.

1528. *The Black Stilt.* By A. M. Shields. *Ibid.*, p. 41.

1529. *The Summer Yellowbird and Cowbird Again.* By. E[d.] S. B[owman]. *Ibid.*, No. 4, Aug., 1884, p. 53. Notes a double nest of Vireo, containing two Cowbird's eggs.

1530. *Cardinal Grosbeak.* By T. D. Perry. *Ibid.*, p. 57.

1531. *Bachman's Finch.* By T. D. Perry. *Ibid.*, No. 6, October, 1884, p. 83.

1532. *Dove vs. Robin.* By H. E. Deats. *Ibid.*, p. 83.—Mourning Dove laying in a deserted Robin's nest.

1533. *A Singular Duel.* By C. B. Wilson. *Ibid.*, No. 7, Nov., 1884, p. 98.—Between a Blue Jay and a Sharp-shinned Hawk.

1534. *Spurred Towhee; Least Tit.* By H. R. Taylor. *Ibid.*, p. 100.

1535. '*Lettuce Bird.*' By E. T. Adney. *Ibid.*, p. 100.—A name for *Spinus tristis.*

1536. "*Dove vs. Robin;*" *White Robin Eggs.* By J. L. Hollingshead. *Ibid.*, p. 103.

1537. *A Four-story Nest of the Summer Yellowbird.* By L[ewis] H. A[dams]. *Ibid.*, p. 107.

1538. *Blue Grosbeak.* By T. D. Perry. *Ibid.*, p. 107.

1539. *Flickers in a Church Tower.* By G. F. B[renniger]. *Ibid.*, p. 108.

1540. *Dove vs. Robin.* By George P. Elliott. *Ibid.*, No. 8, Dec., 1884, p. 113.

1541. *Summer Red-bird.* By T. D. Perry. *Ibid.*, p. 117.

1542. *A Five-story Nest of the Summer Yellow-bird.* By W. L. Scott. *Ibid.*, p. 120.

1543. *Jottings from the Note-book of a Collector in Texas.* By J. A. Singley. *Ibid.*, No. 9, Jan., 1885. p. 122.—Dates of nesting, etc.

1544. *The Barn Owl in Southern California.* By Joseph L. Edmiston. *Ibid.*, p. 125.

1545. *Nesting of the Winter Wren.* By William L. Kells. *Ibid.*, No. 10, Feb., 1885, p. 133.

1546. *Prehensile Power of the Feet of the Crow.* By Montague Chamberlain. *Ibid.*, p. 137.

1547. *The Black Snowbird.* By H. H. McAdam. *Ibid.*, p. 140.

1548. *Notes from Kansas.* By [D. E.] L[antz]. *Ibid.*, No. 11, March, 1885, p. 146.

1549. *Ornithological Synonyms.* By Dr. [E. A.] P[atton]. *Ibid.*, p. 147.—Several vernacular names.

1550. *From California.* By J. L—— and J[ulius] S[chneider.] *Ibid.*, p. 147. Early nesting.

1551. *Meadow Larks in Winter.* By T[homas] McD. P[otter.] *Ibid.*, p. 147.

1552. *From Wisconsin.* By C[harles A.] K[eeler]. *Ibid.*, p. 147.—Notes on *Ampelis garrulus*, *Lanius borealis*, *Larus philadelphia*, and *Zonotrichia querula.*

1553. *The Red-tailed Hawk.* By Geo. H. Selover. *Ibid.*, p. 161.

1554. *The Marsh Hawk.* By Fred. S. Odle. *Ibid.*, p. 161.

1555. *South Carolina Notes.* By W. W. Worthington. *Ibid.*, **Vol. II**, No. 1., May, 1885, pp. 3-8.—A list of 103 species observed in March and April at St. Helena Island.

1556. *Scientific Names.* By Montague Chamberlain. *Ibid.*, pp. 8-9.

1557. *Nesting of the Great Horned Owl.* By 'Ortyx' [=C. J. Pennock]. *Ibid.*, pp. 10-11.

1558. *From Georgia.* By T. D. P[erry]. *Ibid.*, p. 16.—On *Megascops asio* and *Ampelis cedrorum.*

1559. *Interesting Happenings.* By W. G. T[almadge]. *Ibid.*, p. 22.—Habits of Crow and Spotted Sandpiper.

1560. *A Newsy Letter from Texas.* By J. A. Singley. *Ibid.*, pp. 23-24.—Chiefly about nesting habits.

1561. *Notes from California.* By E. H. Fiske. *Ibid.*, No. 2, June, 1885, pp. 29-30.—Nesting habits.

1562. *Wrens on the War Path.* By H. K. Landis. *Ibid.*, p. 31.

1563. *The Redhead.* By A. M. Shields. *Ibid.*, pp. 32-33. Nesting of *Aythya americana*

1564. *Pygmy Nuthatch.* By T. D. Perry. *Ibid.*, p. 44.—Nesting habits.

1565. *Ferrugionus Rough-leg.* By F. M. Dille. *Ibid.*, p. 44.

1566. *One Day on Chester Island with the Marsh Wrens.* By Harry G. Parker. '**The Oölogist**' [continuation of 'The Young Oölogist'], **Vol. III**, No. 1, Jan. and Feb., 1886, pp. 1-2.

1567. *Birds of Cortland Co., N. Y.* By M. D. M[urphy], Jr. *Ibid.*, pp. 2-6.—An annotated list of 109 species.

1568. *Summer Birds about Washington, D. C.* By J. H. Langille. *Ibid.*, pp. 10-11.

1569. *Vagary of a Collector. Great Horned Owls; Climbing Strap.* By Ortyx [=C. J. Pennock]. *Ibid.*, No. 2. March and April, 1886, pp. 19-20.

1570. *Birds of Cortland Co., N. Y.* By F. W. Higgins. *Ibid.*, p. 21.—Additions to list referred to above (No. 1567).

1571. *A Popular Nest.* By C. A. Babcock. *Ibid.*, pp. 21-22. The same nest used successively by a Grackle, a Heron and a Dove.

1572. *Whip-poor-will.* By H. A. Koch. *Ibid.*, p. 23.

1573. *An Unusual Friendship.* By L[ewis] P. B[rill]. *Ibid.*, p. 23.—Robin and House Sparrow sharing a nest.

1574. *A Warm Place for a Nest.* By M[aurice] G. K[ains]. *Ibid.*, p. 25.—Wrens nesting in lamp-posts.

1575. *Nest of the Brown Creeper.* By Wm. L. Kells. *Ibid.*, p. 25.—Mention of various other species.

1576. *Cannibalism of the Red-headed Woodpecker.* By L[ansing] B. F[ontaine]. *Ibid.*, p. 29.

1577. *The History of a Bird Box.* By Harry G. Parker. *Ibid.*, No. 3 May and June, 1886, pp. 31-32.—Notes on *Progne subis.*

1578. *Spring Notes.* By J. H. Melsheimer. *Ibid.*, No. 4, July and August, 1886, pp. 44-45.—At Hanover, Penn.

1579. *Turkey Buzzards.* By C. A. Babcock. *Ibid.*, p. 46.—Nesting in old coyote holes in banks at Danville, Kansas.

1580. *Chewink Nests in a Tree.* By H. A. Koch. *Ibid.*, p. 49.

1581. *Marsh Wrens.* By 'Ortyx' [=C. J. Pennock]. *Ibid.*, No. 5, Sept. to Nov., 1886, p. 58.

1582. *Birds of Chester County, Penn.* By C. J. Pennock. *Ibid.*, **Vol. IV**, No. 1, Jan. and Feb., 1887, pp. 1-10.—A briefly annotated list of 234 species, "compiled from the writer's observations and the lists of the late Vincent Barnard, the venerable Ezra Michener, M. D., and that of Dr. [B.] H. Warren."

1583. *Very Late Nesting.* By Charles A. Keeler. *Ibid.*, p. 12.—*Sialia sialis*, Oct. 26, at Milwaukee.

1584. *Wonderful Peculiarities of the Ruby-throat Hummingbird.* By James B. Purdy. *Ibid.*, No. 2, March-May, 1887, p. 72.

1585. *Notes from College Hill, Ohio.* By H. A. Koch. *Ibid.*, pp. 80-81.—Nesting of various species.

1586. *Hawking.* By Philo [W.] Smith, Jr. *Ibid.*, Nos. 3-4, June-Sept., 1887, pp. 92-93.—Records of nesting of *Bubo virginianus*, *Cathartes aura*, *Buteo borealis*, and *Buteo lineatus*.

1587. *Crow Roosts of New Jersey.* By E. M[artin]. *Ibid.*, pp. 94-95.

1588. *Swainson's Warbler—Its Discovery—Rediscovery.* By Thomas D. Porcher. *Ibid.*, p. 95.

1589. *Nesting of the Traill's and Acadian Flycatchers.* By Will. C. Brownell. *Ibid.*, pp. 96-97.

1590. *Experience with a Great Horned Owl.* By H. B. Hurd. *Ibid.*, p. 97.

1591. *Jottings from Florida.* By A. L. Quaintance. *Ibid.*, **Vol. V**, No. 1, Jan., 1888, pp. 5-6.—Notes on nesting of various species.

1592. *Ground Dove.* By L. S. Morrison. *Ibid.*, p. 7.—Nesting habits.

1593. *Among the Arctic Terns.* By Henry E. Berry. *Ibid.*, p. 9.—Near Damariscotta, Maine.

1594. *From Lincoln County, Maine.* By Henry E. Berry. *Ibid.*, p. 12.—Dates of nesting, etc.

1595. *Acadian Flycatcher.* By J. W. Jacobs. *Ibid.*, p. 13.—Records of fourteen sets of eggs taken at Waynesburg, Penn[sylvani]a., in 1887.

1596. *Icterus spurius—Eastern Race.* By J. M. W. [=C. L. Rawson]. *Ibid.*, No. 3, March, 1888, pp. 37-38.—In Connecticut.

1597. *Nesting of the Cardinal Grosbeak.* By F. W. Clay. *Ibid.*, pp. 39-40.

1598. *An Odd Nesting Place.* By W. J. S[impson]. *Ibid.*, p. 40.—House Wrens nesting in a vane.

1599. *Two-storied Nests of the Meadow Lark.* By Lorie P. Akers. *Ibid.*, p. 41.

1600. *A Large Set of Eggs of the Red-headed Woodpecker.* By R. C. McGregor. *Ibid.*, p. 44.

1601. *Nidification of Ictinia mississippiensis.* By H. Y. B[enedict]. *Ibid.*, No. 5, May, 1888, p. 74.

1602. *House Wren.* By C[arleton] G[ilbert]. *Ibid.*, pp. 74-75.—Egg-laying.

1603. *Nesting of a Pair of Chimney Swifts.* By W. N. C[lute]. *Ibid.*, p. 75.

1604. *The Family Rallidæ in Michigan.* By 'Scolopax' [=Morris Gibbs]. *Ibid.*, No. 6, June, 1888, pp. 85-88.

1605. *Brown-headed Nuthatch.* By A. L. Q[uaintance]. *Ibid.*, p. 91.—Nesting habits.

1606. *Loon; Great Northern Diver.* By 'Scolopax' [=Morris Gibbs]. *Ibid.*, No. 7, July, 1888, pp. 103-105.

1607. *Eggs of Mississippi Kite.* By J. A. S[ingley]. *Ibid.*, p. 105.

1608. *Reminiscences of 1886.* By H[arry] T[rippett]. *Ibid.*, Nos. 8 and 9, Aug. and Sept., 1888, pp. 119-120.—Nesting habits of *Trochilus colubris*, *Myiarchus crinitus*, and *Icterus galbula*.

1609. *Notes from Alachua Co., Florida.* By T. G. P[earson]. *Ibid.*, Nos. 10 and 11, Oct. and Nov., 1888, p. 150.—Records of egg collecting.

1610. *Two Large Sets of Quail Eggs.* By J. V[an] D[enburgh]. *Ibid.*, p. 156.—*Callipepla californica* in confinement.

1611. *An Unusual Nesting Site; Peculiar Eggs.* By W[ill]. N. C[olton]. *Ibid.*, **Vol. VI**, No. 1, Jan., 1889, p. 9.—*Galeoscoptes carolinensis*.

1612. *Birds of Broome Co., N. Y.* By Willard N. Clute. *Ibid.*, pp. 10-11.—Contains one or two interesting notes.

1613. *Notes from an Alabama Collector.* By C[harles] W[ise]. *Ibid.*, pp. 14-15.

1614. *The Raptores of Michigan.* By Morris Gibbs. *Ibid.*, No. 2, Feb., 1889, pp. 29-30; No. 4, April, 1889, pp. 67-69.

1615. *Nesting of the Tufted Tit.* By J. Warren Jacobs. *Ibid.*, No. 4, April, 1889, pp. 72-73.—At Waynesburg, Pa.

1616. *Avifauna of Orleans County, N. Y.* By Neil F. Posson. *Ibid.*, No. 5, May, 1889, pp. 87-93.—A briefly anotated list of 174 species, one third of which are given on the authority of J. H. Langille, George H. Hedley, Frank H. Lattin, and others. The compiler himself seems to be conscientious, though evidently inexperienced.

1617. *A Murderous Red-headed Woodpecker.* By John A. Morden, *Ibid.*, No. 6, June, 1889, p. 113.

1618. *Arkansas Notes.* By 'Arkansas Hoosier' [=C. E. Pleas]. *Ibid.*, No. 7, July, 1889, p. 130.

1619. *The Burrowing Owl.* By A[rthur] L. S[taley]. *Ibid.*, p. 131.

1620. *Notes on the Eggs and Birds of Hillsborough Co., Florida.* By C[harles] S. M[cPherson]. *Ibid.*, No. 8, August, 1889, pp. 147-149.

1621. *The Shore Lark in Canada.* By John A. Morden. *Ibid.*, p. 149.—Early nesting.

1622. *Can Quails be Domesticated?* By L[illie] I. C[onley]. *Ibid.*, pp. 150-151.

1623. *Red-tailed Hawk.* By D. B. R[ogers]. *Ibid.*, pp. 151-152.

1624. *'Old Abe,' Jr.* By R. D. Goss. *Ibid.*, No. 9, Sept., 1889, pp. 167-168.—Bald Eagle in captivity.

1625. *Bell's Vireo.* By Albert O. Garrette. *Ibid.*, p. 169.

1626. *A Curious Nesting Place.* By R[euben] C. M[oorman]. *Ibid.*, p. 176.—*Sialia sialis*.

1627. *List of the Winter Birds Found in Kalamazoo County, Mich.* By Scolopax [=Morris Gibbs]. *Ibid.*, No. 10, Oct., 1889, pp. 187-189.—68 species observed during December, January and February.

1628. *American Long-eared Owl.* By A. C. Murchison. *Ibid.*, pp. 190-191.—Nesting habits.

1629. *The Thick-billed Grebe.* By L[eslie] Dart. *Ibid.*, No. 11, Nov., 1889, pp. 205-206.

1630. *Incidents in Bird Life.* By Gus. Rapp. *Ibid.*, No. 12, Dec., 1889, p. 230.—A Robin attacking a flock of Cedarbirds.

1631. *The Prairie Horned Lark.* By J. V. Crone. *Ibid.*, p. 231.

1632. *Marsh Hawk.* By Alfred W. Comfort. *Ibid.*, pp. 234-235.

1633. *Thousands of Blackbirds.* By John Mykrantz. *Ibid.*, p. 236.—At Paola, Kansas.

1634. *Northern Phalarope.* By C[harles] C. T[rembly]. *Ibid.*, p. 236.—Striking an electric light tower at Utica, N. Y.

1635. *The Cedar Waxwing Eating Potato Bugs.* By George W. Vosburg. *Ibid.*, p. 237.

Publications Received.—Allen, J. A. Remarks on Individual and Seasonal Variation in a large Series of *Elainea* from Chapada, Matto Grosso, Brazil, with a Revision of the Species of the restricted Genus *Elainea*. (Bull. Am. Mus. Nat. Hist., II, No. 3, pp. 183-208.)

Belding L. The Small Thrushes of California. (Proc. Cal. Acad. Sci. 2d Ser. II, pp. 57-72.)

Berlepsch, Hans von. Notes on some Neotropical Birds belonging to the U. S. National Museum. (Proc. U. S. Nat. Mus., 1888, p. 559-566.)

Bocage, J. V. Barboza du. Sur deux espèces à ajoutter à la faune ornithologique de St. Thomé. (Jorn. de Sci. Math., Phys. e Natur. das Acad. Real das Sci. de Lisboa, 1889, pp. 142-144.)

Clarke, W. Eagle. On the Ornithology of the Valleys of Andorra and the Upper Ariège, and other Contributions to the Avifauna of the Eastern Pyrenees. (Ibis, 1888, pp. 526-552.)

Davison, J. L. Birds of Niagara County, N. Y. With Annotations. (Reprint from Forest and Stream, Sept. 1889.)

Langdon, F. W. On the Occurrence in large numbers of Seventeen Species of Birds. (Journ. Cincinnati Soc. Nat. Hist., Oct. 1889, pp. 57-63.)

Meyer, A. B. Ueber einige seltene Exemplare von Rakel- und Birkwild im Museum Ferdinandeum zu Innsbruck. (Ferdinandeums-Zeits., 1889, pp. 225-235.)

Menzbier, M. A. Ornithologie du Turkestan. Livr. 1e, Moscow, 1888.

Meyer, A. B., and F. **Helm**. IV. Jahresbericht (1888) der Ornithologischen Beobachtungstationen im Königreich Sachsen. 4to, pp. 150 1889.

Nehrling, H. Die Nord-Amerikanische Vogelwelt. 3, 4, 5, Heft, 1889.

Reichenow, Ant. Bericht über die Leistungen in der Naturgeschichte der Vögel während des Jahres 1886. (Wiegm. Arch. für. Naturg. LIII Jahr. ii, pp. 47-136.)

Ridgway, R. (1) A Review of the genus *Xiphocolaptes* of Lesson. (Proc. U. S. Nat. Mus. 1889, pp. 1-20.) (2) A Review of the genus *Sclerurus* of Swainson. (Ibid., pp. 21-31.) (3) Scientific results of

Explorations by the U. S. Fish Commission Steamer Albatross, No. I.—Birds Collected on the Galapagos Islands in 1888. (Ibid., pp. 101-128.)

Saunders, Howard. An Illustrated Manual of British Birds. 8vo. 1889, p. xi + 754.

Shufeldt, R. W. (1) Studies of the Macrochires, Morphological and otherwise, with the view of indicating their Relationships and defining their several Positions in the System. (Journ. Linn. Soc., Zool., XX, pp. 299-394, pll. 17-24.) (2) Contributions to the Comparative Osteology of the Families of North American Passeres. (Journ. Morph., III, June, 1889, pp. 81-114, pll. v, vi.) (3) Notes on the Anatomy of *Speotyto Cunicularia Hypogæa*. (Ibid., pp. 115-125, pl. vii.)

Townsend, Charles H. Notes on the Natural History and Ethnology of Northern Alaska. (Rep. Cruise of the Corwin in the Arctic Ocean in the year 1885, by Capt. M. A. Healy, U. S. R. M., Commander, 1887 (=1889), pp. 81-102.)

Trouessart, E. Revue de Paléontologie pour l'Année 1887, Vertébrés. (Annuaire Géol. universel, IV, 1888, pp. 675-743—Oiseaux, pp. 705, 706.)

Tschusi zu Schmidhoffen, Victor Ritter von. (1) Die ornithologische Literatur Oesterreich-Ungarns 1888. (Die Schwalbe, XIII Jahrg.) (2) Ornithologisches aus dem vergangenen und dem heurigen Jahre. (Ibid.) (3) Vorläufiges über den Zug des Steppenhuhnes (*Syrrhaptes paradoxus*, Pall.) durch Oesterreich-Ungarn im Jahre 1888-89. (Ibid.)

Wilson, Scott B. On three undescribed Species of the Genus *Hemignathus*, Licht. (Ann. & Mag. Nat. Hist., Nov. 1889.)

Zeledon, José C. Catálogo de las Aves de Costa Rica. Con indicación de las Especies, localidades y número de ejemplares contenidos en la Colección del Museo Nacional. (An. del Museo Nacional, República de Costa Ricà. I, ii, pp. 103-135).

American Field, XXXII, Nos. 11-24, 1889.

American Journ. Sci., Oct.-Dec., 1889.

American Naturalist, May-June, 1889.

Forest and Stream, XXXIII, Nos. 8-21, 1889.

Journal Cincinnati Soc. Nat. Hist., Nos. 2, 3, 1889.

Naturalist, The. A Month. Journ. Nat. Hist. for North of England, Nos. 171-173, 1889.

Ornis, Internat. Zeit. für die gesam. Orn., Heft 3, 1889.

Ornithologist and Oölogist, XIV, Sept.-Nov., 1889.

Ottawa Naturalist, III, Nos. 2, 3, 1889.

Proceedings Acad. Nat. Sci. Philadelphia, Pt. II, 1889.

Zoologischer Anzeiger, Nos. 315-322, 1889.

Zoölogist, Oct.-Dec., 1889.

GENERAL NOTES.

An Early Date of a Rare Bird in South Carolina.—I shot on October 15, 1889, at Mt. Pleasant, S. C., a young male Red-throated Diver (*Urinator lumme*). The bird was very shy, and it was with great difficulty that secured it. It was in good condition, and had apparently been in the neighborhood for some time, as it was seen several times at a distance, but it was mistaken for a Florida Cormorant. The Red-throated Diver is one of the rarest of the winter birds that visit South Carolina. During the severe winter of 1886 several were taken, but they have not been found here since. This early date of capture is certainly surprising, as they have only been seen for a few weeks in January.—ARTHUR T. WAYNE, *Charleston, S. C.*

The Mottled Duck in Kansas.—In my 'Revised Catalogue of the Birds of Kansas' I entered this bird as the Florida Duck (*Anas fulvigula*). Mr. Sennett, in the July number of 'The Auk' for 1889, describes a new Duck from Texas, viz., Mottled Duck (*Anas maculosa*) to which, I find upon examination, the Kansas bird should be referred, instead of to the Florida Duck as given.—N. S. GOSS, *Topeka, Kansas.*

Capture of the Widgeon (*Anas penelope*) on the James River, Virginia.—At Washington Market, New York City, on January 25, 1879, I saw a male Widgeon among a lot of American Ducks which had just been received from a gunner on the James River, Virginia, by a dealer who was positive that the Widgeon had been killed with the other Ducks, as he had never handled any foreign game. The specimen was exhibited, in the flesh, to the Linnæan Society of New York, and is now in the collection of the American Museum of Natural History, New York. It is a young adult, and can be exactly matched in size and coloration from a series of Widgeons from Europe. Its fresh measurements were as follows: length, 495 mm.; alar expanse, 850 mm.; wing, 244 mm.; tail, 102 mm.; culmen, 35 mm.; tarsus, 39 mm.—EDGAR A. MEARNS, M. D., *Fort Snelling, Minn.*

The King Eider (*Somateria spectabilis*) at Erie, Pennsylvania.—The great storm of Nov. 28 and 29, 1889, on the Great Lakes, brought into the Bay of Erie a flock of fifteen to twenty King Eider Ducks. They were seen about noon of Nov. 30 swimming in close to the Iron Ore Dock where numbers of men were at work unloading vessels. The hunters were soon down on the dock with guns and others put out in boats. So fearless or stupid were the Ducks that it was no trouble to shoot them, and at one discharge three were killed. Mr. James Thompson very kindly took two of the birds home with him and telephoned me that some very queer looking Ducks had been shot that day, placing at my disposal the pair he

had secured. The next day, Dec. 1, we went to the dock and to all the hunters we could get track of and captured all the specimens that had not already gotten into the pot. Out of fourteen that we could trace as having been killed, we were fortunate enough to obtain seven in good condition. The oldest hunters here do not remember to have seen any of the kind before. They call them Boobies, the same name they give to the Surf Ducks that are frequently taken here. No other Ducks were seen in the bay when the Eiders appeared. They are in all varieties of immature plumage, none appearing in anything like the breeding condition. The nearest approach to it was one male that showed pearl gray mixed with dark on top of head; he also had a distinct black V-shaped mark on the white throat. The other males had browner heads and fainter black V-shaped throat markings. Of the seven, six are males, and one a female in good typical plumage. I believe that none of this species has been recorded as taken on Lake Erie since 1879, when eighteen were shot at Buffalo, N. Y. (See note by J. A. Allen in Bull. Nutt. Ornith. Club, Vol. V, p. 62.)—GEO. B. SENNETT, *Am. Mus. Nat. Hist., New York City.*

The Little Brown Crane (*Grus canadensis*) **in Rhode Island.**—Under date of Oct. 14, 1889, Mr. F. T. Jencks writes me: "I saw today at Mr. J. M. Southwick's natural history store in Providence a finely mounted specimen of the Little Brown Crane (*Grus canadensis*) which Mr. Southwick informed me was shot the 8th or 9th of October by Benjamin Burlingame, at Natick Hill, Rhode Island."

I have since learned from Mr. Southwick that the bird belongs to the Superintendent of Public Schools at Natick where it will be preserved in an educational collection. As far as I am aware this species has never previously been reported from any part of New England, although the Whooping and Sandhill Cranes are supposed to have occurred rather numerously in the early colonial days.—WILLIAM BREWSTER, *Cambridge, Mass.*

Baird's Sandpiper at New Haven, Connecticut.—On October 19, 1889, I took a male *Tringa bairdii* at New Haven, Conn. It was flying high over a sand spit running out into New Haven harbor, in a flock of about twenty other Sandpipers, of what species I am unable to say.

Another specimen of this species, a female in the young plumage, now in the collection of Mr. C. C. Trowbridge, New Haven, was shot at the same locality, Oct. 28, 1887. These make the second and third records * of Baird's Sandpiper for Connecticut.—LEWIS B. WOODRUFF, *New Haven, Conn.*

Callipepla squamata in Northeastern New Mexico.—During the month of October, 1889, I found the Scaled Partridge to be a not uncommon bird at a place called 'Point of Rocks,' about eight miles south of Chico Springs, Colfax Co., New Mexico. They are probably extremely local, as

*For the first record see Averill, Auk, VI, 189.

I could hear of no others outside of that immediate locality. This is, I believe, the most northerly record for the species.—E. C. THURBER, *Alhambra, Cal.*

The Key West Quail-Dove (*Geotrygon martinica*) **at Key West.**—It is of interest to note the capture of an adult male of this species by Mr. J. W. Atkins at Key West on September 15, 1889. This is the only occasion, in some three years of careful field work, on which the species has been encountered by Mr. Atkins, and I append his notes on the subject.

"I went to the woods at daylight (September 15) to learn if Swainson's Warbler had arrived, and plunging into the lowest and thickest of the wood to look for that species I finally discovered one Swainson's Warbler, a very wild and shy bird. In the pursuit of the bird in question, while wending my way carefully and slowly through the thick underbrush, the Dove (*Geotrygon martinica*) was discovered on the ground about eight paces ahead of me. I secured it with dust shot from my 40 calibre gun. I saw but the one Swainson's Warbler and did not secure it."

Mr. Atkins has kindly sent me the bird, No. 3269 of my register. It is an adult male that has just completed the moult, and is in very fine unworn plumage.—W. E. D. SCOTT, *Tarpon Springs, Fla.*

Buteo brachyurus and B. fuliginosus.—The evidence presented by Mr. Scott in the July (1889) number of 'The Auk' (pp. 243—245), apparently removes all doubt as to these two very dissimilar birds being simply phases of one species, a view of their relationship which has for many years been held by leading European ornithologists, but which I could not share, for reasons fully explained by me on pages 209, 210 of Bulletin N. O. C. for October, 1881. Mr. Scott's suggestion, however, that "the bird known as *B. brachyurus* is the female, and that called *B. fuliginosus* the male" is certainly incorrect in that it implies that such is *always* the case; for I have examined males and females of both forms (see the article quoted above). I would add that as each phase is also represented by very young birds, the variation would appear to be a purely *individual* one, as in the cases of the two phases of the Screech Owl (*Megascops asio*) and of several other species of *Buteo*—the difference from the latter being that in the case of *B. brachyurus* the large majority of specimens are either typically one phase or the other, while in other *Buteones* examples of various intermediate character are decidedly the more numerous instead of exceptional.—ROBERT RIDGWAY, *Washington, D. C.*

New York City Owls.—Strix pratincola. AMERICAN BARN OWL.—On April 13, 1878, Mr. Joseph Wilde brought a fresh specimen to Mr. Edward Conway, taxidermist, of 55 Carmine St., New York City, stating that it was killed "just outside the City."

Nyctala acadica. SAW-WHET OWL.—While walking on the upper part of Manhattan Island, above High Bridge, on the Harlem River, March 13,

1881, I saw a fine Saw-Whet Owl which alighted on a stump among some red cedars and afterwards flew freely about without apparent inconvenience, the day being dark and cloudy.—EDGAR A. MEARNS, M. D., *Fort Snelling, Minn.*

Megascops asio maxwelliæ.—Three ejected pellets of the Rocky Mountain Screech Owl, sent by Mr. Denis Gale from Gold Hill, Boulder Co., Colorado, for examination as to nature of food, and examined by Dr. A. K. Fisher of the Department of Agriculture, have been found to contain the following materials.

No. 1. The remains of a meadow mouse (*Arvicola*) and crawfish.

No. 2. Made up almost entirely of the remains of crawfish with a few fragments of beetles.

No. 3. Remains of crawfish.—CHARLES E. BENDIRE, *Washington, D. C.*

The American Hawk Owl near Washington, D. C.—It may be of interest to the readers of 'The Auk' that a fine specimen of *Surnia ulula caparoch* was taken here in the District of Columbia on the 29th of November, 1889, and is now in the hands of Mr. Webster, the taxidermist of Washington. Is it not an unusual locality for it?—R. W. SHUFELDT, *Washington, D. C.*

Note on Cyanocitta stelleri litoralis Maynard. — In separating the Vancouver Island Jay as a new form, I fear Mr. Maynard was influenced by insufficient material. Comparison of six specimens from Vancouver Island with a series of some twenty *stelleri* taken in the adjoining coast region, and in British Columbia by Mr. Clark P. Streator, shows that the characters assigned the island bird are neither constant nor peculiar. In three of the six the bands across the tail are very evident; in the three remaining the bands are obsolete or appreciable only in certain lights, but these three specimens are exactly matched by several examples in my series from the mainland.

The same variation in markings is also shown by other members of this group, and I have examined specimens of *frontalis* from California, and *macrolopha* from Arizona and Sonora, in the collections of Mr. Brewster and the American Museum, in which the barring of wings and tail was reduced to the minimum.—FRANK M. CHAPMAN, *American Museum of Natural History, New York City.*

Capture of a Canada Jay (*Perisoreus canadensis*) near Cambridge, Massachusetts.—Mr. James R. Mann has given me permission to announce the interesting fact that a Canada Jay was shot at Arlington Heights (within sight of Cambridge and less than four miles distant in an air line) by Mr. E. B. Winship, Oct. 17, 1889. The specimen was mounted, and is now in Mr. Mann's collection. It is a male in perfect autumnal plumage. The stomach was filled with the remains of "wasps or bees," but contained no traces of other food.

Mr. Maynard has reported (Birds of E. N. A., 1879, p. 168) seeing a Canada Jay in Newtonville "in early summer" about 1875, but Mr. Mann's bird seems to be the first that has been actually taken in Massachusetts.—WILLIAM BREWSTER, *Cambridge, Mass.*

A Second Nest and Eggs of Picicorvus columbianus taken in Colorado.—Mr. Denis Gale, of Gold Hill, Boulder Co., Colorado, writes me that he found a second nest of Clark's Nutcracker, containing three fresh eggs, on April 16, 1889. He found the nesting site first on March 12, noticing one of the birds trying to break off a small twig from a dead tree, and watching the direction it took afterwards. The bird which came from behind him flew high over his head, and after waiting for some time he noticed both birds flying to and from a certain point fully five or six times. After a careful search he finally found a few twigs lying upon a horizontal limb in the dense top of a small scrubby pine-tree about twelve feet high and six inches in diameter. On visiting the place again a week later, at his approach one of the birds flew off a neighboring tree uttering his warning note, but upon inspection he found no changes or augmentation of the twigs, and concluded therefrom that a new nesting site had been selected, and when he visited the spot a week later still with the same results his conclusion seemed to be verified and he made an exhaustive search within a radius of a mile of this point, but all to no purpose, seeing neither nests nor birds. Four weeks later, on April 16, passing close to the place where the birds had commenced building first, he stopped to look once more at the site first selected by this pair of birds, and much to his surprise discovered a bulky nest in place of the few twigs first noticed, with the female on it and covering three eggs. The nest was placed about nine feet from the ground, and resembles the one taken in 1888 in every particular; perhaps it is a little more bulky still. The eggs bear a close resemblance to the first set found by Mr. Gale, excepting that the markings are possibly a little more decided and numerous. They measure 1.34 × .90, 1.37 × .91, and 1.39 × .92 inch. Mr. Gale's first nest, containing three fresh eggs also, was found on March 5, 1888, six weeks earlier and probably an unusually early case.—CHARLES E. BENDIRE, *Washington, D. C.*

Bullock's Oriole in Maine.—Mr. Manly Hardy writes me that a male Bullock's Oriole (*Icterus bullocki*) was shot "a few miles from Bangor, Maine, about the middle of November, 1889, and sent in the flesh to Mr. Crosby, the well-known Bangor taxidermist, by whom it was mounted" Mr. Hardy has lately examined the bird and compared it with a Western specimen, from which it differs only in being "a little more of a canary color."

This capture adds a species to the New Engand list as well as to the fauna of Maine. It also affords still another example of the curious fact that most of the Western and Southern birds which occur in New England as rare or purely accidental stragglers, are found in late autumn or early winter.—WILLIAM BREWSTER, *Cambridge, Mass.*

Notes upon Coccothraustes vespertina as a Cagebird.—In 'The Auk' for January, 1889, I presented a few notes having reference to the sudden appearance, at Fort Wingate, New Mexico, of the Evening Grosbeak in considerable numbers. The migration to which my remarks referred occured in October and November, 1888, and I went on to say how fortunate I was upon that occasion in collecting quite a number of those beautiful birds. As the flocks became larger and more numerous I would, in firing into them with the fine dust shot I was using, often wound several individuals, but these were despatched in the usual way and either skins or skeletons made up from the specimens. Later, however, the thought struck me that it would be a good thing to try and save some of these slightly wounded ones with the view of making cage pets of them, and as luck would have it the very same afternoon I came upon a flock numbering considerably over a hundred. They were resting in an old, leafless piñon tree, and in the midst of the flock sat a stately male whose olive green coat was nearly black, it was so dark, and the white of his wings was dazzling in contrast, it was so very white. At the double report of my gun a dozen or fifteen came tumbling down through the tree, and fell upon the spotless, drifted snow beneath it;—such beauties! Among them, with his jet-black wings and tail spread out upon this powdery frozen carpet, lay the fine old patriarch of the flock, for I had made him the target of my first barrel. After all these specimens had been cared for, each placed with the due precautions in its separate paper cone, there was discovered sitting on a side-twig of another scrubby pine, near by, a fine female, that had evidently sustained some wounds. Upon capturing her these were found to consist in a broken wing and leg, and an oblique shot through the corner of the eye, but red-eyed and fractured as she was, I determined to take her home in her then condition and see what good nursing would do towards repairing her numerous injuries.

To shorten this part of my account, I will only add that in due time she made a most excellent recovery, and long before that came about she had become wonderfully gentle, and allowed me to handle her without biting me with her powerful beak, as she would do for a week or more just after her capture. She was kept upon a pine bough in the deep recess of a window in my study, and fed every day upon fresh cedar berries of which these birds are inordinately fond, and with which she would gorge herself as fast as she could see to pick them from the branches by the aid of her single good eye, and her crippled limbs to get about among the twigs with. Shortly her eye was much improved, and she would whistle shrilly as soon as she caught sight of me coming towards her with a fresh branch loaded with her favorite food. In eating the berries the outside skin and soft part are rapidly removed by rolling them deftly around between the powerful mandibles, when the seed is quickly swallowed, and the bird ducks over and picks a fresh one to extract the seed in the same manner, and this she would keep up until her alimentary canal seemed almost ready to burst with the unnatural distention. Some time

during the latter part of this same month of November I succeeded, by the same means, in securing a magnificent old male, he being in full autumnal plumage when taken, and his wound a tip on the wing with a single dust-shot. My delight can be well imagined, as I marched home with him and introduced his lordship to my first pet, who now seemed as happy as a lark in her open cage formed by the capacious window-recess with a goodly pine branch stretched across it. Soon it was to be seen which of the pair was to be 'cock of the walk,' and the male bird assumed the position, becoming master of the situation with no little display of tyranny, I thought. Towards myself, however, he was quite as gentle as his amiable mate, for he soon allowed me to hold him in my hand and stroke his pretty head with my finger. They soon came to be very fond of hemp-seed, and they frequently bathed with evident relish in a shallow dish of water placed at their disposal. During January of the following year, a freezing cold month, they were brought by me in a small cage of my own construction to Washington; the journey proved to be quite as eventful for the birds as it was for their owner. But they accommodated themselves marvelously well to the varying circumstances, and the first thing I did upon bringing them into their eastern home was to place the pair in a new and commodious cage.

When it came round to March a noteworthy change came over their night habits, for up to that date the pair invariably roosted together, with their heads under their wings, all night long. But during the early part of March the male only kept his perch, sleeping away, while the female bird nearly the entire night incessantly hopped from perch to perch in a restless, uneasy manner. This she persisted in for about a week, when she in turn kept quiet, and then it was the male, who had his week of nights devoted to the same performance.

It looked almost as if the migrating instinct were so strong in them that they had to give vent to it in some way or other, and this extraordinary behavior were the outcome of it. They were now in full feather, and thoroughly reconciled to their quarters; they ate heartily of any of the smaller, sweet seeds, such as apple, maple, hemp, and others, and so were fat and in good condition. Even when the thermometer was down to 32° F. they would bathe, this too, when the cage was hanging outside my window; the male in all such matters invariably serving himself first, driving off his patient partner with a loud, sharp snapping of his bill, and a few, plainly to be understood, threatening notes. Neither of these birds, however, for the entire time they have been in my possession (within a few days of a year now) has ever given vent to anything that might be considered a song. Both utter a kind of screech-whistle, not unlike one of the notes of the English Sparrow, and, indeed, it is usually called forth by one or more of those birds *shrieking* in their usual way in the neighborhood. Other birds, though, will also excite them when they come near the cage, and my Grosbeaks will frantically skip from perch to perch, and the peculiar note to which I refer may be heard for some considerable distance away. At other times they have a low, plaintive note

that is quite pleasing to my ear, as are some of their expressions of pleasure while feeding or bathing. In all this the female is just as often heard as the male, and her voice has precisely the same power, pitch, and tone. In May I was delighted on one occasion to observe the female receive the approaches of her mate, and I immediately supplied them with the most suitable building materials my mind could suggest, as well as a sheltered forked limb. In a few days the female started a nest of fine black roots, and slivers of cedar-bark. She had about half finished the structure when the male bird deliberately pulled it to pieces, and all my efforts to get her to try it once more, were entirely futile.

Much to my surprise they both began to moult by the third week in June, and by the middle of July they presented sorry figures indeed. This change I had dreaded for some time, as I felt sure the male would lose some of his original brilliancy of plumage, but as this latter began to come out again early in August, the only change I saw, which was as interesting as it was contrary to my liking, was a pure white elliptical spot as big as a cherry-stone on the lower third of the outer feather on either side of his otherwise dead black tail. In fact the green of his body color came out fully a shade darker. During the middle of August a cat nearly got both of them, and pulled out a great many of their feathers, and strange to say in the case of the male, who lost one of the white-spotted feathers on one side of his tail, when it came again it was as black as a coal all over, so that at the present writing he has the white area only on one side. No change occurred in the plumage of the female, who now (October 24, 1889) is in beautiful feather, and one of the most graceful birds I ever saw in a cage. They are passionately fond of small butterflies and common house flies, and will greedily take either from your fingers when held to them between the wires of their cage. A very curious habit is to be observed, that, so far, has only been indulged in by the male; sometimes when he is chilled after a shower, and the sun comes out warm and bright, and streams through the cage, he will, standing on a perch, tilt himself way over sidewise, open his bill, close his eyes, and fluff up all his feathers until he looks double his natural size, and he apparently greatly enjoys the heat of the sun as it can thus gain access to his skin. Since the moult the female has been the master of the cage, and now has things pretty much her own way, but on the whole they are a pretty amiably disposed pair of birds, and give me every reason to believe that they are eminently contented in their confinement; and they are certainly a source of daily pleasure to me, as some of their low notes are very sweet, and the lovely harmony of their plumage never tires me. I look eagerly for the coming of spring, as I still hope that I may get her to breed, or even, perhaps, to lay; and as soon as the season sets in a thoroughly quiet place will be set aside to hang their cage in, as *quiet* is the great secret of getting native birds to lay and breed in captivity.—R. W. SHUFELDT, *Washington, D. C.*

Intergradation between Zonotrichia leucophrys and Z. intermedia, and between the latter and Z. gambeli.—Material received at the National Museum within the past year proves extensive intergradation between the birds hitherto called *Zonotrichia intermedia* and *Z. gambeli*. It therefore becomes necessary to consider them as merely geographical races of one species. At the same time, a few examples have been seen which are clearly intermediate between *Z. intermedia* and *Z. leucophrys*; but considering the very great number of specimens of these two forms that have been collected in various portions of the West, the relatively small proportion of such specimens is astonishing. Possibly they are hybrids; but it is more probable that they indicate true intergradation between the two supposed species. If this view proves to be correct, the three would stand as follows: (1) *Zonotrichia leucophrys* (FORST.); (2.) *Z. leucophrys intermedia* RIDGW., and (3) *Z. leucophrys gambeli* (NUTT.).—ROBERT RIDGWAY, *Washington, D.C.*

Mortality among Bank Swallows.—Upon reading the article in 'The Auk' for October, 1889, on the 'Mortality among Eave Swallows' by Dr. F. H. Kimball, a similar instance was recalled to my mind of my experience with the Bank Swallows (*Clivicola riparia*) in this locality.

By referring to my note-book I find that June 3, 1888, I made a trip to a place where hundreds of these birds breed every year. I saw no birds about the holes, and at once concluded that they had not bred there that year, but as the holes seemed to have been excavated recently, I examined them, and found dead birds in nearly every hole that I dug into. Some of the birds were quite fresh, while others had the appearance of having been dead a long time. These birds were not in very good condition, but were far from being poor and emaciated. Almost all of the holes contained nests, but very few had eggs in them, and two were the most found in any one nest. As to the cause of their destruction I am wholly perplexed, as the weather at that time was mild, although there was a little more rain than usual.—WILLARD E. TREAT, *East Hartford, Conn.*

Capture of a Specimen of the Orange-Crowned Warbler (*Helminthophila celata*) in the Vicinity of Washington, D. C.— The writer secured a fine adult specimen of the Orange-crowned Warbler (*Helminthophila celata*) while collecting on October 13, 1889, in company with Mr. H. W. Henshaw, at Munson Hill, Virginia, a locality a few miles from this city.

It was one of a large flock of birds which included White-crowned, White-throated, Swamp, and Field Sparrows, Maryland Yellow-throats, Yellow-rumped Warblers, Kinglets, and Juncos.

When first seen it was in a thicket of small alders, blackberries, and thoroughworts, gleaning insects from among the flowers of the latter plant.—A. K. FISHER, M.D., *Washington, D. C.*

A Curious Specimen of the Yellow-throated Warble (*Dendroica dominica*).—On August 29, 1889, I shot near Charleston an adult male Yellow-throated Warbler in full autumn plumage with the back nearly jet black. The whole back is black, but concealed partially. Every feather has a large black spot with only a very small portion of the end marked with the usual color, *i. e.*, bluish gray. This is not the first specimen I have taken marked in that way, for I shot one in 1885 which also has a blackish back, but not nearly as pronounced as the one I now record. I have both of these birds in my collection. — ARTHUR T. WAYNE, *Charleston, S. C.*

The Nest and Eggs of Regulus calendula.—About the 20th of May, 1888, while at one of our cattle ranches on the White Mountains, Apache Co., Arizona, I noticed a pair of Ruby-crowned Kinglets busily engaged in picking up feathers from in front of the door of the ranch. These feathers they carried to a clump of tall spruce-fir trees about sixty yards from the house, but for some time I could not be certain as to which tree they were building in. Finally I noticed that the Kinglets stayed longer in one particular tree than in any of the others, so I climbed it and at last discovered the nest in a clump of fir cones near the top of the tree. I did not touch the nest as I knew it could not then contain eggs. Next day I was unfortunately obliged to return to the home ranch, thirty-five miles northeast of this place, preparatory to a trip to New Mexico, as we had to start on June 3. On June 1, that being the last day I could spare, I rode the thirty-five miles in the morning to the tree where the nest was, tied my horse to another tree, and ascended to the nest. It was blowing furiously, and the nest was so near the top of the tree that taking it became a matter of considerable difficulty. The nest was completely hidden by the fir cones surrounding it, and was placed about four feet out from the stem of the tree, at the end of a branch, so I ultimately found it necessary to cut off the branch, nest and all. The nest contained five fresh eggs. Cutting off the extreme end of the branch with the cluster of cones and nest still attached, I descended the tree but unfortunately broke an egg on the way down. Even after I had the nest down upon the ground, it was no easy matter to get the eggs out without breaking them. This, however, I finally succeeded in doing, and packing the eggs in my hat, I started on my long ride home rejoicing.

The nest, as before stated, was placed in a bunch of cones at the end of a small branch, in a spruce-fir tree, at an altitude of about sixty or seventy feet from the ground. It was semi-pensile, being attached to the branch above and also to the cones all round. Fine moss, lichens, cobwebs, etc., were its chief components, the interior plentifully lined with feathers, chiefly those of the Wild Turkey and Dusky Grouse. The external width of the nest was about 4 inches, internal width about 1.5 inches, depth from 1.5 to 2 inches. On my return from New Mexico I was annoyed to

find that mice had destroyed the nest, which I had left at the upper ranch.

The eggs were of a whitish ground color, very minutely spotted with pink or pale red chiefly at the larger end where they formed an indistinct band round the greatest width of the egg.

The locality where I found this nest is about twenty-two miles west of the town of Springerville, and at an altitude of about 8500 to 9000 feet above sea-level, just about where the pines (*Pinus ponderosa*) end and the spruces begin. This species is always to be found among the spruces high up in the White Mountains in summer, but I have never been able to find another nest although I have searched long and diligently several seasons.—JOHN SWINBURNE, *St. Johns, Apache Co., Arizona.*

Myadestes townsendii Wintering in Montana.—Not having seen a copy of 'The Auk' for April, 1889, till several months after publication, the following note on *Myadestes* in answer to a query by Mr. Frank Bond is somewhat delayed. The birds are found in Montana north at least to latitude 47°, during our coldest winters. They are not at all common, however, and are decidedly sluggish during cold spells. I have seen a bird sit motionless for hours near the extremity of a dead pine limb, with body and tail almost horizontal, the thermometer at the time scarcely marking above zero Fahr. in the middle of the day. They are very silent in winter, not even uttering their call notes, that I have observed, but these permanent residents begin their song early in spring, long before the snows have melted from the mountains, or any of their companions from the south have arrived. The song is loud, varied, and Thrush-like, and is uttered as they mount rapidly upward in short zigzag flights to a height far above the pines. I have never observed the birds to remain long at any one elevation while singing, nor have I ever heard anything but their call notes when perched.—R. S. WILLIAMS, *Great Falls, Montana.*

NOTES AND NEWS.

JOHN G. BELL, the venerable naturalist-taxidermist, died at his home at Sparkhill, Rockland County, New York, in October, 1889, in the seventy-eighth year of his age. A pioneer in the art of taxidermy, he was for many years a leader in this auxiliary branch of zoölogy, and his laboratory in New York City was well known to almost every zoölogist of his day. The friend and associate of Audubon, Baird, Cassin, Giraud, LeConte, he rendered to them all valuable assistance in procuring and preparing natural

history specimens. The names given in his honor to Bell's Sparrow, Bell's Vireo, and Bell's Warbler, mark the esteem in which he was held by these eminent naturalists. As an aid and collector he accompanied Audubon on the famous journey to the Upper Missouri, securing with his own hands a large proportion of the new species described by Audubon as the result of this expedition.

Mr. Bell's tastes led him into the field and work-room rather than the study, but he freely gave to others the results of his experience, and the pages of our earlier works attest the keenness of his observation. Five years before his death he retired from active business in New York, and the remaining years of his life were passed at his home at Sparkhill. Here he erected a small building, placing in it the material then on his hands, amounting to several thousand specimens of birds and mammals. He was never again actively engaged in taxidermal work, though frequently sought for by his older patrons to preserve some pet or trophy of the chase Being thus isolated from persons of kindred tastes he gave a warm welcome to visiting naturalists, and his eager enthusiasm on these occasions, when recounting early adventures in the field, testified alike to the charm of his presence and the undying character of an inborn love of nature.—F. M. C.

THE EXHIBITION OF SPECIMENS of Horned Larks, and of Thrushes of the *Turdus aliciæ-bicknelli* group, proved an interesting feature of the late Congress of the A. O. U. Of the latter the number of specimens was small, but afforded fair material for the illustration of the relationship of these closely allied and not generally well understood forms. The Horned Larks thus brought together numbered over 1200 specimens. It was of course impracticable to attempt any elaboration of this material under the circumstances attending its display to the Union. The various forms as now recognized were pointed out and their affinities explained by Mr. Ridgway. In order to utilize this important material to the fullest extent practicable, the Committee of Arrangements, under whose auspices it was brought together, turned it over to Mr. Jonathan Dwight, Jr., for study, and to report upon in a special paper to be printed in 'The Auk.' Mr. Dwight, having entered at once upon the work, finds that the material adds much to our knowledge of the forms of this perplexing group, and throws much new light upon their character and geographical distribution. He finds the material from the region west of the Rocky Mountains, however, too scanty to enable him to reach wholly satisfactory conclusions respecting some of the Pacific Coast and Southwest forms, and solicits the loan of additional specimens from any part of this area for use in completing his monograph. Packages may be addressed to him, care American Museum Natural History, 77th St. and 8th Ave., New York City. A prompt response is desired. The specimens will be returned as soon as practicable. labelled with his identifications.

THE COMMITTEE OF ARRANGEMENTS for the Eighth Congress of the A. O. U., to be held next year in Washington, has been requested by a

vote of the Union to provide facilities for the exhibition of stereopticon views of birds and bird life from such slides as may be furnished by members; also to solicit, by a circular letter, from ornithologists and photographers, the loan of photographs of living birds and other animals for exhibition at the next meeting, and also the submission of communications detailing their personal experience in making photographs of living animals, and in their reproduction for purposes of illustration. Much interest was manifested by several members who spoke to the resolution, in the subject of the photography of birds from life, and its utility as an aid to the correct representation of birds when in action or at rest in a state of nature.

Dr. Edgar A. Mearns, Capt. Med. Dept. U. S. A., now stationed at Fort Snelling, Minn., is spending several months at the American Museum of Natural History, working up his large natural history collections made during several years of field work in Arizona, principally in the vicinity of Fort Verde. These collections include, besides birds and mammals, a large collection of plants, ethnological material, and many reptiles. The birds alone number about 3500 skins and 1000 eggs, and the mammals about 600 specimens. Nearly all of this material he has very generously presented to the American Museum, besides many birds and eggs from other parts of North America and elsewhere, including about 1000 bird skins and about 1800 eggs from Arctic Europe. A list of his Arizona plants, including many new species, has already been published by Dr. N. C. Britton of Columbia College. Dr. Mearns hopes to have his preliminary report on the birds and mammals soon ready for publication.

Besides Dr. Mearns, and in addition to the Curator of Ornithology and his Assistant, there are now engaged in bird work at the Museum Mr. D. G. Elliot, Mr. George B. Sennett, Mr. Jonathan Dwight, Jr., and Mr. E. E. Thompson.

Among the recent important accessions received at the American Museum of Natural History is the valuable oölogical collection made by the late Mr. Snowdon Howland, of Newport, R. I. This is one of the richest and most carefully selected collections of North American birds' eggs ever brought together by a private collector, numbering nearly 1000 clutches. The Museum is indebted for this valuable gift to Mr. Howland's brother and executor, Clarence King, Esq., of New York, to whom Mr. Howland entrusted the final disposition of his collection.

We are informed that the third edition of three thousand copies of Davie's 'Nests and Eggs of North American Birds' which was published in in June, 1889, and reviewed in the last number of this journal, is entirely exhausted. In order to meet the constant demand for the work a fourth edition of one thousand copies has been issued from the same plates as the third, and when this is disposed of it will be followed by a fifth edition completely revised and augmented.